GALILEO MAKERS
CAMP GALILEO
2015 SUPERNova ART
(For rising 3rd-5th grade campers)

This curriculum was developed by Galileo Learning in collaboration with the Maker Education Initiative.

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About Galileo Learning

Galileo Learning (Galileo) creates and operates Innovation Camps for kids. Their mission is “to develop innovators who envision and create a better world” and this mission comes to life each summer at nearly 60 imagination-sparking locations (40 in the Bay Area, 15 in SoCal locations and 4 in Chicagoland.) They also train and employ more than 2100 educators and aspiring educators as summer staff. Galileo’s programs serve campers from pre-K through 8th grade.

In all of Galileo’s programs, the curricula focuses on helping campers (and staff) develop 21st Century skills and mindsets through understanding and applying the Galileo Innovation Approach (GIA). The GIA is inspired by the Stanford d.school’s design thinking process and mindsets and fine tuned for 5-14 year old campers who are especially open to absorbing new ways to think, explore and create. Click here for more information about Galileo Learning.
The Galileo Innovation Approach

The Galileo Innovation Approach (GIA) is our unique approach to teach and learning. It is designed to develop Galileo Innovators – campers and staff who imagine and create a better world. Galileo Innovators approach their work with an Innovator’s Mindset, do their work with an Innovator’s Process, and seek/leverage Innovator’s Knowledge.

Galileo Innovator’s Mindset
Galileo Innovators have dispositions that support breakthrough thinking and creative work. The Galileo Innovator’s Mindset has five elements:

BE VISIONARY
- I envision a better world.
- I imagine things that don’t yet exist.
- I believe that it is my place to turn ideas into reality.

BE COURAGEOUS
- I freely share my creative thoughts.
- I stretch myself to try new things.
- I embrace challenges.

BE COLLABORATIVE
- I value the unique perspectives of others.
- I build on the ideas of others.
- I use my strengths to support the work of others.

BE DETERMINED
- I persevere until I achieve my goal.
- I recognize setbacks as opportunities to learn.
- I know that innovation and mastery require effort.

BE REFLECTIVE
- I take time to think about what is and isn’t working in my design.
- I think about how my work impacts other people and the world.
- I seek feedback to improve myself and my work.

Galileo Innovator’s Process
Galileo Innovators learn and practice an iterative process to bring the best ideas to fruition. The diagram below shows the Galileo Innovator’s Process:

Galileo Innovator’s Knowledge
Galileo Innovators require subject-specific knowledge to creatively solve problems and make their visions a reality. Galileo Innovator’s Knowledge lies in the following four categories:

CONCEPTS AND FACTS
Galileo Innovators understand the big ideas, principles, and facts relevant to their work.
Examples: Adding more tension to a rubber band creates a higher pitch when it’s plucked

HISTORICAL CONTEXT
Galileo Innovators understand the contributions, objectives, and processes of relevant movements, artists, scientists, designers, and other experts who came before them.
Examples: Kandinsky uses a variety of brushstrokes and line types to represent music visually

SKILLS AND TECHNIQUES
Galileo Innovators understand how to use relevant materials, tools, and technology so they can effectively build, test, and share their ideas.
Examples: Manipulating cardboard by cutting, curling, bending, folding, scoring, tabbing, and fastening; taping techniques; watercolor resist

AUDIENCE AND ENVIRONMENT
Galileo Innovators understand the needs, beliefs, and circumstances of their users and the physical context in which their work will be received.
Examples: Engineers need to design buildings in a specific way when constructing in an earthquake prone area
Galileo Innovation Approach and the Curriculum

Our curriculum is designed to support you in teaching the Galileo Innovation Approach and nurturing Galileo Innovators. Below are some ways in which the curriculum fosters your development as an Innovation Educator.

First, you’ll find that the components of the GIA literally leap off the page.
- The GIA terms are emphasized throughout the curriculum in ALL CAPS to help you easily identify opportunities to integrate the GIA.
- An overview of the key Innovator’s Knowledge, Process, and Mindset for each lesson appears in the Instructional Priorities & Supporting Innovation section. Think of these as the blueprint of a successful lesson. Starred sections in the curriculum are connected to these priorities and should not be skipped.

Second, the curriculum includes a daily Innovator’s Mindset Challenge. The Mindset Challenge helps campers focus on developing a different part of the Innovator’s Mindset each day and shows how practicing this element can help them develop as innovators. The challenge is introduced near the beginning of the lesson, supported with details in the facilitation notes and debriefed as part of the lesson wrap up.

Third, each day concludes with a Lesson Wrap Up that provides a forum for you to go deep on innovation themes with campers. Prompts are provided to support project sharing, reviewing key Innovator’s Knowledge and debriefing the day’s Mindset Challenge. Use this time to help campers solidify what they learned, notice how practicing the mindset helped them with their project and recognize the innovator in themselves and in others. Familiarize yourself with the discussion questions before each lesson so you can best guide campers to develop as innovators throughout the rotation.

Additionally, these general practices can help you to bring the GIA to life:
- Think about what it means to you to be an Innovation Educator and find ways to realize that vision.
- Pace your class to allow time for campers to engage with each project, giving ample time for the TEST, EVALUATE and REDESIGN phase so that campers can thoughtfully evaluate how they can improve their designs, and then implement the modifications.

- Model the Mindset in your teaching. When you make a mistake, celebrate it! Tell the campers that your teaching or the project didn’t go as planned, and that you’ll learn from that and try it a different way in the next rotation.
- Help campers understand what it means to be a Galileo Innovator and strive to shape their self-images as such.
- Recognize campers as they exhibit the Innovator’s Mindset as relevant throughout the day—in addition to this focus during the Wrap Up. (E.g., I see that you’re BEING REFLECTIVE, thinking about what is and isn’t working with prosthetic hand design. That’s a great way to start developing an innovative solution!)
- Refer to the steps of the Innovator’s Process (and your Galileo Innovator’s Process Poster) as you describe the day’s activities and as campers work.

Finally, the curriculum supports your own innovations for how to integrate the GIA in your classroom. Please apply the Innovator’s Mindset and Process to this end and SHARE your learning with your colleagues!
Galileo Makers – Supernova (Grades 3-5)

DIY Art

Day 1

Character Clocks, Part 1 of 5

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Day 2

Character Clocks, Part 2 of 5

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Day 3

Character Clocks, Part 3 of 5

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Day 4

Character Clocks, Part 4 of 5

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Day 5

Character Clocks, Part 5 of 5

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Project Overviews

Galileo Makers Day 1 – Character Clocks, Part 1 of 5

Project Description
Making functional art is a great way to tap into the Maker mindset. Campers will embark on their weeklong project of making a character clock. After brainstorming about character possibilities as a class, campers will narrow down their ideas and spend time sketching.

Instructional Priorities and Supporting Innovation

Do-With-Me: Generating Ideas Brainstorm
★ Facilitate the categories brainstorm to support GENERATING IDEAS.
★ Support the DESIGN process of trying multiple ideas, choosing favorites, and developing sketches around them.

Throughout the Lesson
★ Support the Innovator’s Mindset Challenge: BE VISIONARY – Campers imagine designs/ideas that they’ve never tried before.
Galileo Makers Day 2 – Character Clocks, Part 2 of 5

Project Description
Today campers think about and start designing the movable parts for their clocks. Then they prepare the final sketch on tracing paper and paint a background wash on the Bristol paper.

Instructional Priorities and Supporting Innovation
Do-With-Me: Movable Parts Brainstorm
★ Support campers in GENERATING IDEAS for how to incorporate movable parts.
★ Support campers in continuing to finalize their DESIGNS by helping them incorporate the feedback they've received.

Demo & Discussion: Setting Up the Background Overview
★ Demo the TECHNIQUES for sketching to scale.
★ Discuss the TECHNIQUES for preparing and creating a background wash on Bristol board.

Throughout the Lesson
★ Support the Innovator’s Mindset Challenge: BE REFLECTIVE – Campers consult each other before moving forward with their designs.

Galileo Makers Day 3 – Character Clocks, Part 3 of 5

Project Description
Campers continue to bring their custom character clocks to life.

Instructional Priorities and Supporting Innovation
Demo & Discussion: Cutting, Drawing and Painting Overview
★ Demo the TECHNIQUES for cutting and attaching the Bristol to the cardboard, and poking a hole for the clock parts.
★ Demo the TECHNIQUE for creating size guidelines to redraw the character on Bristol.
★ Demo and discuss TECHNIQUES for using acrylic paint.

Throughout the Lesson
★ Support the Innovator’s Mindset Challenge: BE DETERMINED – Campers complete each step of today’s project (cutting, redrawing, painting) thoroughly and purposefully.
Galileo Makers Day 4 – Character Clocks, Part 4 of 5

Project Description
Campers finish painting the character, assemble the clock parts, and then add movable parts to the clock hands.

Instructional Priorities and Supporting Innovation
Demo & Discussion: Moving Forward and Numbers Discussion
★ Discuss EVALUATING the state of the paintings and introduce TECHNIQUES for bringing them to completion.
★ Discuss TESTING movable clock parts.
★ Introduce the CONCEPT of adding numbers to the clock as part of the design.
Camper Work Time: Continue Painting and Assembling
★ Lead individual table groups through the TECHNIQUES needed for assembling the clock parts and battery.
Throughout the Lesson
★ Support the Innovator’s Mindset Challenge: BE DETERMINED – Campers do what it takes to meet today’s key goals: finishing their characters and making sure their clock parts are working.

Galileo Makers Day 5 – Character Clocks, Part 5 of 5

Project Description
Campers finish working on their clocks and then participate in an extended group Maker share.

Instructional Priorities and Supporting Innovation
Do-With-Me: Setting Design Goals
★ Support IDENTIFYING THE GOAL by giving campers prompts to guide their thinking about where their clocks need the most focus.
Demo & Discussion: Reflection Overview
★ Demo giving meaningful and less meaningful feedback to support valuable SHARING.
Throughout the Lesson
★ Support the Innovator’s Mindset Challenge: BE REFLECTIVE – Campers think about what they need to do to push their projects to the next level before starting, and then take time to reflect on their final creations.
This Week’s Story

Each week at camp a story will unfold though a series of skits done at opening and closing ceremonies. The story provided to your Camp Director for this theme has been included here so that you can incorporate the story into your classroom this week. We've provided some suggestions in the curriculum for how to tie activities into the storyline, and we also encourage you to bring the story to life in your own way!

Galileo Makers Story Overview

Website Teaser

Galileo Makers: DIY Art and Real-World Inventions
Flex your maker muscle and put a creative spin on everyday objects. Design a personalized stool, clock or pillowcase for your room. Build useful inventions to take home like a vacuum or a secret lock box with an alarm that really works. Harness your innovative energy and join the marvelous maker movement as you transform intriguing ideas into functional, faire-ready reality.

Characters

• Storyteller
  Our narrator, who reads Monday’s story and parts of Wednesday’s and Friday’s—this role can be played by anyone who is a clear-spoken, engaging reader of stories
• Lucy, a girl who lives in Land Land
  A curious, potentially creative human stuck in a world of dull sameness—a situation that has resulted in a state of constant restlessness, as she never quite knows what to do with herself
• Finn, a boy who lives on Cardboard Island
  A super-enthusiastic kid who’s always up for a challenge and has ideas to spare—an I-have-an-awesome-idea-so-what-are-we-waiting-for kind of guy
• Lucy’s parents
  Formerly creative folks who have lived in Land Land so long they don’t remember what it’s like to make things themselves
• The makers of Cardboard Island
  Assorted creative folks—including our Camp G campers—who live and make on Cardboard Island

Setting

Land Land and Cardboard Island

• Land Land: A place where everyone is the same—everyone dresses the same (in dull colors), decorates the same (minimally, also in dull colors), has the same haircut and says all the same things (e.g.: Person 1: “Welcome to Land Land”; Person 2: “Welcome to Land Land”)
• Cardboard Island: An alternate world that's covered in cardboard as far as the eye can see—its inhabitants spend their days transforming its vast cardboard reserves into awesome hand-made gizmos, gadgets and pieces of furniture, all wildly colored and wonderfully personalized

Plot

Restless in her Land Land existence (and dreading an upcoming move to a new house that's just like her current house), Lucy draws a doorknob on the back wall of her closet, which opens a portal to Cardboard Island, a land covered in cardboard and inhabited entirely by marvelously creative makers. There she meets Finn, who introduces her to the fabulous, fearless creativity of the Cardboard Islanders. They offer to help her make items to personalize her new room. When Lucy gets stuck back in Land Land, she and the Cardboard Islanders work together to reopen the portal and stage a mini-Maker Faire featuring items for Lucy's new room.

Conflict

Lucy's dad paints over the "doorknob" in Lucy's closet, sealing the portal and locking her in Land Land before she can realize her vision for her new room. She and the Cardboard Islanders need to reopen the portal and stage their Faire before Friday's move and without upsetting Lucy's parents, who might not approve of such un-Land Land-like creations.

Resolution

Lucy and the Cardboard Islanders reopen the portal between the lands and put on an awesome Maker Faire on the island. Lucy's parents follow her through the portal to the Faire, but instead of being upset, as Lucy feared, they're impressed and inspired by her VISION.

What We Want Campers to Learn

• The Maker Movement is all about making things and getting people together to learn and create.
• Maker Faire is an all-ages gathering of makers who come together to collaborate, get inspired and share what they've made and learned.
• As long as you have an imagination (and a little cardboard) you never have to be bored.
• Innovators are VISIONARY and COLLABORATIVE.

**Galileo Makers: Monday**

**The storyteller reads:**

Once upon a time, so long ago that nobody but the storytellers remember, there lived a girl named Lucy. Lucy lived in a place called Land Land where everything was the same. In Land Land, everyone wore the same clothes, ate the same food, drove the same cars and lived in rows of identical houses. And this is how it had been in Land Land for generations. Year after year, it was the same, and that sameness had been the same for Lucy’s parents, her grandparents and her great-great grandparents, all the way back as long as anyone could remember.

It wasn’t such a bad place to live, but Lucy couldn’t help but feel a little tired of all the sameness. Sure, it made it easy to pick out her clothes in the morning and decide what to eat for lunch, but she couldn’t help but feel like there was something... missing.

On the day our story begins, Lucy was sitting in her room doodling, thinking about her family’s big move to a new house later that week. She wanted to be excited about moving, but she just couldn’t muster up any enthusiasm, because in Land Land, new houses were pretty much just the same as old houses. Which meant that her new room would look pretty much the same as her old room, which, in turn, looked exactly the same as her brother's room... and her best friend's room... and her best friend's brother's room...

"UGH!" Lucy exclaimed, rising to her feet. She was suddenly so fed up with the dreary, tedious BORINGNESS of it all. "Why does EVERYTHING I own have to look exactly the same as everything everyone else owns?" she wondered out loud, waving her pencil around for emphasis. Throwing open her closet door, she scanned racks and shelves stuffed with identical shirts, shoes, toys, books and sports equipment, all in drab, sensible colors. Pushing them aside, she stood considering the back wall of her closet. "Well," she said, looking at the pencil in her hand, "maybe I there's SOMETHING I can make look a little different."

And with that, she drew a big, round, ornate-looking doorknob on the wall in front of her, right where a doorknob would go if the back of her closet were a door instead of a wall. When she was done, she stood back, pleased with her handiwork. In fact, her doorknob looked so real, she almost felt like she could reach out and grab hold of it... so she did. And to her surprise, the knob turned in her hand and her closet wall swung open in front of her like a big door. Speechless and more than a little curious, she took a deep breath and stepped through it.

Lucy blinked in the bright sunlight. As her eyes started to adjust, she noticed three things about her surroundings:

Number one: She wasn’t inside her closet anymore. The warm, dazzling sun and fresh, salty-smelling air made that part pretty obvious.

Number two: She was surrounded by cardboard as far as the eye could see. But not just cardboard boxes and tubes and scraps—cardboard EVERYTHING. There were cardboard trees and flowers, cardboard benches and streetlights, cardboard houses and bicycles... and they were all so DIFFERENT. Every last flower petal and bicycle spoke was different from the one next to it—brightly painted, adorned with trims and tassels, some even wired with lights and switches. She’d never seen anything so intriguing or beautiful in her whole life... certainly not in Land Land.

And the third thing she noticed was the people—because there were plenty of people in this strange new place, and they had started to notice this new, drably dressed visitor. The people here were a little like the place itself: decked out in a variety of colors and cool embellishments, every one totally, marvelously different from the last. There was even a whole batch of kids about her age, sitting right in front of her, who seemed to be campers of some kind...

One of these utterly unique individuals—a boy about her age, wearing a wildly cool, totally wacky cardboard hat and a backpack covered in buttons and lanyards—walked right up to her and stuck out his hand. "Finn's the name," he announced cheerfully, "it's awesome to meet you!" Lucy took his
hand tentatively. “Hello, hello. I’m Lucy,” she said, nodding her head twice, as was traditional in Land Land. And then, before she could stop herself, she blurted out, "Um... I’m sorry, but I... I’m just a little confused. Where am I?" Finn laughed. “Oh, how silly of me,” he said, “where are my manners? Lucy, welcome to Cardboard Island!”

**Galileo Makers: Wednesday**

1. Lucy and Finn learn about each other’s homes

*The storyteller reads:* "Now, where did we leave off? Ah yes! There Lucy was, on the other side of a mysterious door in the back of her closet, surrounded by bright people and their bright creations, talking to a boy named Finn...”

* • Finn tells Lucy about Cardboard Island, a place covered in cardboard and inhabited by makers, including this group (i.e., the campers), who only just arrived Monday.  
  • Lucy explains how different this place is from her home and tells Finn what led her here: She’s tired of everything being so same-y in Land Land, especially the idea of her not-so-new "new" room in the house she’s moving to.

2. Finn and his Cardboard Island friends offer to help

* • Excitedly, Finn says that he and his friends are experts at personalizing special spaces—they can help her make stuff for her room!  
  • Lucy gets excited too, confessing that she sometimes sketches ideas for inventions.  
  • The pair makes a plan: On Friday, Lucy, Finn and the Cardboard Islanders (including the campers) will put on a Maker Faire (an event Finn has to explain to Lucy) on the island, full of creations she can use in her new room.  
  • Lucy is thrilled, but she muses that she probably shouldn’t tell her parents yet, since she’s not sure how they’ll feel about all these unique creations in their Land Land home.

3. Lucy gets stuck back in Land Land

*The storyteller reads:* “A few days passed, with Lucy traveling back and forth between Land Land and Cardboard Island, sharing her sketches and starting to learn how to bring them to life. But one day, when she came rushing home from school, excited to head to the island with a new batch of ideas, she got an awful shock...”

* • Lucy finds her dad in her closet, just having painted over her doorknob (an innocent mistake—he saw something out of order and thought he’d fix it).  
  • Once her dad leaves, Lucy confirms that the door is, in fact, gone.  
  • She tries redrawing the doorknob but it’s no use—she bangs on the door helplessly.

4. The Cardboard Island folks reopen communication

* • Just then, a note arrives through the closet wall (the Cardboard Island gang heard her banging and fashioned a quick mail slot), which Lucy reads aloud: "Pretty cool mail slot, huh? We think we can figure out a new door, too. We just need a little time...”

5. The Cardboard Island folks convince Lucy to stay the course

* • Lucy is skeptical, but then she hears Finn calling faintly through her wall: He tells her that nothing is impossible if they COLLABORATE—they’ll keep planning and making for the Friday Faire (sending plans through the mail slot), plus work on ideas to help them reopen the portal between the two lands.

**Galileo Makers: Friday**

1. Lucy wraps up the finishing touches on her Maker Faire project

*The storyteller reads:* "It had been a busy few days since the door in Lucy’s closet—the one between her home in Land Land and Finn’s home on Cardboard Island—had been accidentally sealed shut. Lucy had been spending that time hard at work, communicating with her friends on Cardboard Island, sending plans back and forth as they generated ideas and creating her own project for Friday’s Maker Faire...”

* • Lucy finishes her project and holds it up to inspect it, looking proud, then sighs, wondering aloud if she’ll ever be able to go to Cardboard Island again—was this all a big waste of time?

2. Lucy reopens the door to Cardboard Island

* • Just then, she hears something coming from her closet and walks over to check it out.  
  * "Is that you, Finn?” she asks.  
  * "Yup,” he responds, and then: "Draw a new doorknob!”
• She doesn’t hear him clearly at first, and once she does, she has to remind him that she already tried redrawing the doorknob with no luck.
• Finn explains that they figured out the secret to unlocking the portal: She can’t just draw the same doorknob again: “We’re makers—it has to be a totally reimagined thing... something the world has never seen before!”

3. Lucy attends her first Maker Faire
The storyteller reads: “Lucy picked up her pencil and studied the wall for a moment, then began to draw a completely new kind of doorknob, this one square and modern-looking with broad stripes running across it. When she was done, she picked up her project, took a few steadying breaths and reached out to turn her new doorknob. And once again, there she was, standing in the dazzling sun of Cardboard Island. But before she could celebrate her successful arrival, she was stopped in her tracks by what she saw: Everywhere she looked, there was a different maker with a different incredible thing—chairs and beds and beanbags; nightlights and desk lamps and fairy lights; clocks and door hangings and murals. It was all so overwhelmingly, astonishingly amazing that she almost couldn’t take it all in... but she wanted to try...”

• Lucy runs around the Faire delightedly, meeting makers, hearing about their projects and sharing her own.

4. Some unexpected visitors show up
• As Lucy begins to run to another booth, she runs smack into her mom and dad.
• Lucy is at a loss for words, but begins to stammer an excuse for what she’s doing and why she’s there, trying to hide her project behind her back.
• Her parents (a little speechless themselves) slowly explain that they’re not mad... they’re impressed—in fact, they remember a time, long ago, when they used to make things, too...
• They ask to see Lucy’s project and marvel at it—they’re inspired by her VISION.
• Overjoyed, Lucy says that she couldn’t have done any of it without the COLLABORATIVE efforts of Finn and her other Cardboard Island friends—the community of makers that welcomed her.

5. The storyteller wraps things up
The storyteller reads: "Lucy, her parents, Finn and the rest of the Cardboard Island makers spent hours together at the Faire that day, sharing each other what they made and sharing what they learned making it. The Land Landers started to truly understand the power of creating things the world has never seen before and of working together with interesting, innovative people. And they learned a lesson that Cardboard Islanders, Galileo campers and makers all over the world have known for many years: As long as you have an imagination—and maybe a little cardboard—your life will never be boring.

By the end of the day, Lucy and her parents were so utterly inspired and full of ideas for what else they could make—objects to decorate their new house, to solve everyday problems, to give as gifts—that they couldn’t wait to show everyone back home in Land Land. And that’s exactly what they did. And from that day forward, to their delight, Land Land was never the same again.”

Notes and Additional Ideas
• Your other actors can act out the read-out-loud scenes as the storyteller reads them.
• As inhabitants of Cardboard Island, campers can submit their own ideas/plans for a new door between their land and Land Land.
• Lucy and Finn not being able to hear each other through the wall can be played for comedy: They can stand directly next to each other (with either a cardboard or an imaginary wall between them), shouting as loud as they can, but barely able to make each other out.
• Lucy’s project for the Faire can be anything—a camper project or something entirely different.
• On Wednesday or Friday, Lucy can meet real makers (played by staffs) that campers have been learning about, who can share their projects with her.
• On Friday, campers can stage the Maker Faire that Lucy discovers on the other side of her door.
• Feel free to turn Friday’s Faire into a deeper exploration of campers’ work throughout the week—look at each project and call out (or have campers identify) the Mindset elements and Process steps they used in making it.
**Preparation for the Week**

This section contains preparation of materials such as cutting paper and cardboard. Give this list to Summer Interns (SIs) who have some time to help Lead Instructors (LIs) or to Team Leaders (TLDs) who help LIs do prep work after camp. It also helps you get a sense of the prep needed for the week. It does not include tasks such as setting out materials or preparing a place to store projects. Those suggestions are in the prep section of each lesson.

**Day 1 – Character Clocks, Part 1 of 5**

Days earlier

- Start creating your own sample clock so campers can get a sense of where they’re headed.
- Choose a clock shape for your sample. If you’re using the circle, trace the shape on the Bristol (check Days 2 and 3 for information). Paint a gradient background wash and sketch a simple character on the clock, assemble the clock parts, and attach two movable parts on the clock arms.
- This can be a super-simple example just to give campers some context. Don’t spend a lot of time getting into the details. Some ideas:
  - A flower with two bees as the movable parts on the clock
  - A robot with moving arms
  - An owl in a tree with falling leaves as the movable parts
- Prepare Maker Notebooks for campers with the newsprint. Simply fold the sheets in half (5 sheets per camper).

**Day 2 – Character Clocks, Part 2 of 5**

Days earlier

On tracing paper, create an example of a to-scale sketch of your example clock so campers can see how the planning sketch needs to be the same size and shape as the actual clock. Draw your sketch with Sharpie so it is visible from further away.

**Day 3 – Character Clocks, Part 3 of 5**

Days earlier

- Cut cardstock in half to make 5.5" x 8.5" sheets, for drawing the movable parts (1 per camper).

**Day 5 – Character Clocks, Part 5 of 5**

Days earlier

- Cut cardstock in half to make 8.5" x 5.5" sheets to be used for creating extensions (1 per camper).

Day before

- Set up the painting stations as before.
- Think about if you want to rearrange your classroom at all to facilitate a share at the end or for the Friday closing setup.
Day 1

Character Clocks, Part 1 of 5

Character Development
Making functional art is a great way to tap into the Maker mindset. Campers will embark on their weeklong project of making a character clock. After brainstorming about character possibilities as a class, campers will narrow down their ideas and spend time sketching.

The Big Picture

Lesson Breakdown

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome to Art</td>
<td>5 min</td>
</tr>
<tr>
<td>Introduction</td>
<td>5 min</td>
</tr>
<tr>
<td>Do-With-Me: Generating Ideas Brainstorm</td>
<td>15 min</td>
</tr>
<tr>
<td>Camper Work Time: Character Sketching</td>
<td>30 min</td>
</tr>
<tr>
<td>Clean Up</td>
<td>5 min</td>
</tr>
<tr>
<td>Wrap Up</td>
<td>10 min</td>
</tr>
</tbody>
</table>

GIA Focus
Innovator’s Process Focus: GENERATE IDEAS and DESIGN
Innovator’s Mindset Focus: BE VISIONARY – I imagine things that don’t yet exist.

What’s Next: Tomorrow (Day 2) campers will explore adding movable parts to their clocks and prepare the background. On Day 3 campers will start painting on the clock itself. On Day 4, campers will finish painting the character, assemble the clock parts, and then add movable parts to the clock hands. On Day 5, campers will finish working on their clocks and then participate in an extended group Maker share.

List of character combinations from the brainstorm and a beginning sketch
How to Create Today’s Project

Step-by-Step Pictorial

This is intended to help you understand how to create today’s project. It doesn’t include everything campers will do today, like the guided brainstorm. It also doesn’t describe how you’ll facilitate this lesson for campers. You’ll need to read the “Play-by-Play” section for this information.

Sketching Ideas from the Brainstorm

- Sketch out two or three favorite ideas from the group brainstorm in the Maker Notebook.
- Focus on narrowing down a final idea or two for the character and background elements.
- If there’s more time, start thinking about which elements of the character/scene will be movable.
Get Ready!

Lesson Materials
* (starred) items are choice materials; un-starred items are required for each camper

Intro Materials
☐ sample of character clock in beginning stages, for context (1 per LI)
☐ copy, color, Ted Brull’s Clocks (1 per 4 campers)

Do-With-Me: Generating Ideas Brainstorm
☐ paper, newsprint, 9” x 12”, for Maker Notebook (5 sheets per camper)
☐ pencil, #2 (1 per camper)
☐ copies, color, Art Clocks I and II (1 per 4 campers)

Camper Work Time: Character Sketching
☐ all materials from the Do-With-Me (1 set per camper)

Preparation
Days earlier
☑☑ Start creating your own sample clock so campers can get a sense of where they’re headed.
  • Choose a clock shape for your sample. If you’re using the circle, trace the shape on the Bristol (check Days 2 and 3 for information). Paint a gradient background wash and sketch a simple character on the clock, assemble the clock parts, and attach two movable parts on the clock arms.
  • This can be a super-simple example just to give campers some context. Don’t spend a lot of time getting into the details. Some ideas:
    ▪ A flower with two bees as the movable parts on the clock
    ▪ A robot with moving arms
    ▪ An owl in a tree with falling leaves as the movable parts
☑☑ Prepare Maker Notebooks for campers with the newsprint. Simply fold the sheets in half (5 sheets per camper).

Day before
☑ Set up table groups with the following:
  • Maker Notebooks (1 per camper)
  • pencils (1 per camper)
  • color copies, Art Clocks I and II and Ted Brull’s Clocks (1 per 4 campers)
☑ Set up the board so you have plenty of room to record campers’ ideas during the brainstorm. Make several headings (creating columns is probably easiest), using the following. You can start populating them to give campers something to work with as follows:
  Animals
  ▪ hippo, hummingbird, turtle
  Imaginary Creatures
  ▪ fairy, alien, ghost
  Professions
  ▪ football player, chef, musician, police officer
  Actions
  ▪ swimming, rollerblading, cooking

Suggested Materials Management
Clock parts are small – keep them in their packaging until you are ready to use them on Thursday.

Suggestions for Large Classes
None

Check In With Your TL
Make sure your TLs are clear about their role in helping today’s lesson run smoothly. Specific ways TLs can help today are listed in the dotted overview boxes throughout the lesson.

On the Board
Guiding Questions
Generate Ideas
  • What if you combine ____ with ____?
  • What do you notice in the color copies? What ideas does this give you?
BE VISIONARY

- What exciting ideas do you see around you? How can you put a unique spin on these by combining them with your own ideas?
- How could you change ___ to make it different from a ___ that already exists?

Vocabulary
None today

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**Teaching the Lesson: Overview**

**Instructional Priorities & Supporting Innovation**

These are the key lesson elements you’re expected to communicate/support today. Think of this as the blueprint of a successful lesson. When applicable we’ve included details about why an element is important for innovation.

**Do-With-Me: Generating Ideas Brainstorm**

- Facilitate the categories brainstorm to support GENERATING IDEAS.
- Support the DESIGN process of trying multiple ideas, choosing favorites, and developing sketches around them.

**Throughout the Lesson**

- Support the Innovator’s Mindset Challenge: BE VISIONARY – Campers imagine designs/ideas that they’ve never tried before.
  Why – Challenging campers to try out a completely new idea will help them become more comfortable with keeping wild and crazy ideas in the running during the brainstorming and sketching phases.
Teaching the Lesson: Play-by-Play

Welcome to Art (5 min)

Introduce the idea of being an innovator. Have campers share what they think innovators are and why they're important. Explain that innovators are people who have a vision to make things better and the skills to turn those ideas into reality. Let campers know that in addition to learning about art they'll also be learning how to be great innovators.

Explain that Galileo innovators follow the Innovator’s Process, practice an Innovator’s Mindset, and use Innovator’s Knowledge.

Point out the Innovator’s Process poster in your room. Tell campers that innovators follow steps that are most likely to lead them to creative solutions and that they'll be using this process throughout the week.

Point out the Innovator’s Mindset poster in your room. Tell campers that innovators have a way of thinking about and doing their work that helps them achieve their goals. Let campers know that there are five parts to this mindset and they'll be practicing these all week.

Explain that the last ingredient for innovation is knowledge. Let campers know that this week they'll be learning a lot of art concepts and skills that will help them bring their creative ideas to life.

Say: Are you ready to be innovative all week? Let’s get started!

Introduction (5 min)

Welcome campers and make a quick story connection
Did you all hear a story about Lucy this morning? How's she feeling? (She’s frustrated that her room looks exactly the same as everyone else’s in Land Land.) Well, maybe we can cheer her up by creating some totally original designs to make her bedroom – and yours – stand out.

Introduce the week’s theme
• Explain that the week's theme is all about Making, which means creating things oneself.

• This includes tools, things for games and play, and totally new inventions. This week, campers are making things that are useful for every day.
• Explain that people who make things are called makers. The maker community is a space where makers can come together to share ideas.
• Tell campers they'll be learning about some current-day makers who are creating things similar to the things they'll be making at camp.
• If this is your second or third rotation you can ask campers to tell you what they know about making and makers, since they will have gotten this introduction in science.

Build excitement for today’s project
• This week we’re going to be making a piece of functional art, a clock!
• Ted Brull is an 11-year-old boy who makes his own clocks. His clocks are different from the kind of clocks campers are going to be making, but they can use his creations as inspiration.
• Show the Ted Brull’s Clocks color copy (below).

• Ted makes his clocks from repurposed computer parts that would otherwise end up in landfills.
• Ted is a great example of making his vision a reality and is a fellow young Maker, just like the campers.
• They’re going to spend the entire week just building their clocks. At the end of the week, they will each have a finished piece of art they can hang on their walls and use to tell the time!
Introduce the Innovator’s Mindset: BE VISIONARY ★
• Point to this on your Innovator’s Mindset poster.
• Define the Mindset element in the context of today’s lesson. Say: Today we’re going to practice being visionary as we focus on brainstorming ideas for our clocks. This means being open to all ideas and possibilities and letting go of what we already know in order to let more ideas in.

Do-With-Me: Generating Ideas Brainstorm (15 min)

What You’ll Need to Cover: Overview
• Give an overview of the project.
• Observe and discuss different kinds of art clocks.
• Explain the goals of the brainstorm and give an overview of how it will work. ★
• Generate ideas for all the list categories on the board. ★
• Have campers write down any other ideas they have for the different categories in their Maker Notebooks. ★
• Guide campers to combine ideas from the four categories to come up with a character idea. ★
• Have campers share their favorite combinations and their initial ideas for a character. ★
Give guidelines for sketching in the Maker Notebook.

How Your TL Can Help
• Help make sure campers are engaged and participating.
• Ensure campers are recording their ideas in their Maker Notebooks.

Guiding Campers
Give an overview of the project
• Explain that campers will be making an art clock based around a character.
• The moving clock hands will be part of the design of the project, and can be transformed into a part of the character, or have added details that move around the character/scene.
• Show them your example and explain that yours is just to give them an idea and is in progress.
• One of the best parts about this clock is that it doesn’t have to be realistic; some of the most fun clocks are wild and wacky and aren’t realistic at all.

Observe and discuss different kinds of art clocks
• Show the Art Clocks I and II color copies (below).

• Ask: What do you notice? (Colorful, abstract, wacky, creative, fun, etc.)
• Point out that many of the clocks don’t even look like anything in particular, they are just created around a theme or idea.
• Ask: How do you know it’s a clock? (The clock hands, and the numbers on the clock.)

Explain the goals of the brainstorm and give an overview of how it will work ★
• Let campers know they will kick off the week with a brainstorm to generate ideas about different kinds of fun characters for their clocks.
• The goal is to come up with as many ideas as they can, select some that they really like, and eventually narrow their ideas down to two or three that they want to try sketching out.
• They will use the category headings on the board. As a class, they can generate ideas to go under the category headings.
• Then, everyone will combine different categories to help them think of characters they might not have thought of right away, like a pirate snail!

Generate ideas for all the list categories on the board ★
• Review the categories on the board and read off any starter ideas that you may have filled in underneath.
• Invite campers to share ideas and record them all on the board as you go.
● If it helps, break things down into subcategories to get the juices flowing. For example, asking campers to think of land animals, sea animals, creatures that fly, etc.
● If just a few campers are dominating the brainstorm, do a few rounds where you take an idea from every single camper, or individual table groups, etc.
● Support BEING VISONARY ★ – Remind campers to keep an open mind and share ideas even if they’re not sure how they would turn those ideas into a clock.

Have campers write down any other ideas they have for the different categories in their Maker Notebooks ★
● Give campers a minute or so to write down any other ideas they have in their notebooks.
● Also give campers a minute to look over the list and notice what words are the most exciting to them.
● Support BEING VISONARY ★ – If campers don’t have any new ideas, you can encourage them to get specific about their favorite things on the list. For example, if they like “bird,” have them write down three different kinds of birds.

Guide campers to combine ideas from the four categories to come up with a character idea ★
● The next step is to mix and match words from the different categories to come up with a character.
● Give them a quick example using a funny combination of some things on the board. For example, Fish Goalie or Bear Chef.
● Have campers pick one word each from the Animal and Profession categories and combine them. They should do about three of these.
● Next, have them combine the Imaginary Creatures category with the Activity category and try out three of those (e.g., Dancing Mermaid).
● Then have them try any combination they want: Animal Activity, Imaginary Creature Profession, Imaginary Creature Activity, etc.
● Make sure they are writing everything down in their notebooks.
● Campers can also write down any new ideas this brainstorm might have sparked.
● Give them a minute to select one to three of their favorite combinations.
● Also ask them to think about what their initial ideas for a character are at this point.

Have campers share their favorite combinations and their initial ideas for a character ★
● On the count of three, have everyone share out a favorite combination!
● Then, give campers an opportunity see who else might be doing something similar to or different from them. Based on the list you generated, ask questions like: Who is going to create something with an elephant? What is it? Who is going to create a character with a ghost? What is it?
● Keep the sharing fast and with the entire class.
● If it seems appropriate for your class, have campers share with a neighbor one thing they are excited about around their ideas. Have campers high-five each other when they are finished sharing.

Give guidelines for sketching in the Maker Notebook
● Tell campers that the rest of the class time is for them to sketch out their character ideas in their notebooks.
● Clarify that they need to sketch out at least two to three different ideas, chosen from the ones they are most excited about.
● Point out that it’s easy to just stop after the first idea or sketch, especially if they like how it’s turning out. However, innovators work to see how they can push their ideas further, which is what they are practicing doing today.
● Oftentimes once we start sketching, our ideas change a little bit once we see what they look like as they are coming to life.
● It’s really important that campers use the whole paper for their sketches. Drawing larger will allow them to include more information and will make the sketches easier to reference later as well.
● Advise campers not to get too stuck on tiny details right now, as they will redraw these sketches a few more times before arriving at a final design. It’s important to keep things on a basic level right now.
● If campers are making progress with their characters, they can draw in a few ideas about what the background might look like.
● If you think it will be helpful for them, you can show them the square and rectangle clock shapes they will get to choose from.
Camper Work Time: Character Sketching (30 min)

During Work Time Campers Will...

**DESIGN**
1. Sketch out two or three favorite ideas from the group brainstorm in the Maker Notebook.
2. Focus on narrowing down a final idea or two for the character and background elements.
3. If there’s more time, start thinking about which elements of the character/scene will be movable.

**How Your TL Can Help**
Help campers push their ideas and really develop their sketches.

Facilitate the Project Steps

**DESIGN (Steps 1-3)**
- Encourage campers who don’t spend much time on their sketches and want to finish right away. Ask them questions to help them think of different ways of drawing the same character idea, like different positions the character could be in, or different expressions, locations, etc.
- Remind campers to use a whole page for each idea.
- If several campers are really having a hard time pushing their ideas forward and don’t want to keep drawing, group them together and have them share their ideas with someone else. Have the partners draw their own interpretations of each other’s character ideas without seeing the original sketches.

Support BEING VISIONARY ★

**Suggest strategies that help and encourage campers to be visionary**
Some specific strategies for today:
- Closing their eyes to help them imagine multiple versions of their characters.
- Adding constraints to encourage creative, surprising ideas. (For example: Coming up with a character using only the letter M, that has fur, etc.) You can support this by giving campers extra design constraints if they’re having trouble thinking outside the box.

Recognize visionary campers
This encourages the camper and helps others see how they can be visionary as well. Recognition can be just verbal or include some kind of physical award. Be sure to be specific about how you see campers being visionary. Some ways you might see vision today:
- Using any of the strategies mentioned above
- Trying something you haven’t seen anyone else try
- Sketching several different versions of the same character
- Going with an idea that is really wacky or wild

**Ask the Guiding Questions that support being visionary**

Clean Up (5 min)
Make sure campers have their names on their Maker Notebooks. They’ll be using these throughout the week.

Lesson Wrap Up (10 min)

**Recognition and Reflection (GENERATE IDEAS & BE VISIONARY)**
Help campers see how they or others embraced the Innovator’s Process and Mindset, and why this is important for innovation.

**Suggested review activity**
- Have campers give you a thumbs-up if they:
  - Came up with at least two fun ideas from the group brainstorm
  - Came up with at least one new idea after the group brainstorm
  - Felt like this brainstorming technique allowed them to come up with several ideas in a short period of time
- Have campers share what they are most excited about for their ideas/whatever sketches they’ve come up with. You can also have campers pair up with their original partners and share how their sketches have progressed.
- Invite campers to recognize their partners or anyone else in the class whom they saw trying out a wide range of ideas.
Day 2
Character Clocks, Part 2 of 2
Movable Parts & Preparing the Background
Today campers think about and start designing the movable parts for their clocks. Then they prepare the final sketch on tracing paper and paint a background wash on the Bristol paper.

The Big Picture

Lesson Breakdown

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
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<tbody>
<tr>
<td>Introduction</td>
<td>5 min</td>
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<tr>
<td>Do-With-Me: Movable Parts Brainstorm</td>
<td>15 min</td>
</tr>
<tr>
<td>Demo &amp; Discussion: Setting Up the Background Overview</td>
<td>10 min</td>
</tr>
<tr>
<td>Camper Work Time: Setting Up the Background</td>
<td>30 min</td>
</tr>
<tr>
<td>Clean Up</td>
<td>5 min</td>
</tr>
<tr>
<td>Wrap Up</td>
<td>5 min</td>
</tr>
</tbody>
</table>

GIA Focus
Innovator’s Process Focus: GENERATE IDEAS and DESIGN
Innovator’s Mindset Focus: BE REFLECTIVE – I seek feedback to improve myself and my work.

What’s Next: Tomorrow (Day 3) campers will start painting on the clock itself. On Day 4, campers will finish painting the character, assemble the clock parts, and then add movable parts to the clock hands. On Day 5, campers will finish working on their clocks and then participate in an extended group Maker share.
How to Create Today’s Project

Step-by-Step Pictorial

This is intended to help you understand how to create today’s project. It doesn’t describe how you'll facilitate this lesson for campers. You’ll need to read the “Play by Play” section for this information.

Preparing the Bristol

If you are creating a square clock, trace the 9" x 9" cardboard square onto the Bristol. Line up the square with one edge of the paper so only one side of it has to be traced, as opposed to tracing it right in the middle of the paper.

Draw a ½" circle in the center of the clock area. (For a rectangle this is the center of the paper. For a square it is the center of the traced square.)

- Use a piece of blue tape to tape the tracing paper to the Bristol.
- Trace the circle you drew on the Bristol.

Fig. 1

Fig. 2

Fig. 3

Fig. 4
Sketching
Note: This rest of this pictorial shows a circle clock, but campers will only be creating either rectangular or square clocks, not circles.

Fig. 5
Sketch the main character, leaving out any movable parts.

Fig. 6
Add background elements if desired, again leaving out any movable parts.

Fig. 7
Place a second sheet of tracing paper on top of the character drawing and sketch ideas for the movable parts.

Background Wash

Fig. 8
Paint a gradient wash on the Bristol.
Get Ready!

Lesson Materials
* (starred) items are choice materials; un-starred items are required for each camper

Intro Materials
☐ sample clock, for demo (1 per LI)
☐ sample of sketch on tracing paper, for demo (1 per LI)

Do-With-Me: Movable Parts Brainstorm
☐ copies, color, Art Clocks I and II (1 per 4 campers)
☐ Maker Notebooks, for sharing sketches (1 per camper)
☐ pencil, #2 (1 per camper)

Demo & Discussion: Setting Up the Background Overview
☐ materials from Camper Work Time, for demo (1 set per LI)

Camper Work Time: Setting Up the Background

- **sketching**
  - cardboard, corrugated, square, 9" x 9", for square clocks (1 per 2 campers)
  - cardboard, corrugated, 9" x 12", for rectangular clocks (1 per 2 campers)
  - paper, tracing, 9" x 12", for sketching (2 per camper)

- **preparing the clock shape on Bristol**
  - selected cardboard shape, square or rectangle, for tracing onto Bristol (1 per camper)
  - paper, Bristol, vellum, 9" x 12", for clock shape (1 per camper)
  - pencil, #2 (1 per camper)
  - marker, Sharpie, fine pt., black, for marking off the center on the Bristol (1 per 2 campers)

- **background wash**
  - paintbrush, flat, 1" (1 per camper)
  - paint, acrylic, white (0.5 tsp. per camper)
  - paint, acrylic, turquoise (0.5 tsp. per camper)
  - paint, acrylic, blue (0.5 tsp. per camper)
  - paint, acrylic, magenta (0.5 tsp. per camper)
  - paint, acrylic, violet (0.5 tsp. per camper)

- **paint, acrylic, yellow (0.5 tsp. per camper)**
- **tray, paint, 6 well (1 per 4 campers)**
- **spoon, plastic (6 per 4 campers)**
- **plate, paper, coated, 9", for palette (1 per camper)**
- **container, plastic, deli, 16 oz., for water (1 per 2 campers)**
- **towel, paper, roll, sheet (2 per camper)**
- **bucket, 5 gal., snap top, for clean water, dirty water and washing hands (3 per classroom)**
- **towel, dish, for preventing slippery floors (5 per classroom)**

Preparation

**Days earlier**

- Set up table groups with:
  - Art Clocks I and II color copies (1 per 4 campers)
  - pencils (1 per camper)
  - Maker Notebooks (1 per camper)
  - tracing paper (2 sheets per camper)
  - 9" x 12" Bristol Vellum (1 per camper)
  - 9" x 9" cardboard squares (1 per 2 campers)
  - 9" x 12" cardboard rectangles (1 per 2 campers)

**Day before**

- Set up table groups with:
  - Art Clocks I and II color copies (1 per 4 campers)
  - pencils (1 per camper)
  - Maker Notebooks (1 per camper)
  - tracing paper (2 sheets per camper)
  - 9" x 12" Bristol Vellum (1 per camper)
  - 9" x 9" cardboard squares (1 per 2 campers)
  - 9" x 12" cardboard rectangles (1 per 2 campers)

**Morning of**

- Set up the materials for painting and set them aside. Be sure they are easy to distribute once campers are ready to do the background wash.
  - all colors of paint (white, turquoise, blue, magenta, violet, yellow) in paint wells with spoons (1 per 4 campers)
  - 1" flat paintbrushes (1 per camper)
  - 16 oz. deli containers with water (1 per 2 campers)
  - 9" coated paper plates (1 per camper)
  - paper towels (2 per camper)
Fill two of the 5-gallon buckets with water and place all three of them in appropriate locations. Use one for clean water/refilling deli containers, a second for dumping dirty paint water, and the third as a hand-washing station. Place towels under and around the hand-washing bucket to prevent slippery floors.

Suggestions for Large Classes

None

Check In With Your TL

Make sure your TLs are clear about their role in helping today’s lesson run smoothly. Specific ways TLs can help today are listed in the dotted overview boxes throughout the lesson.

On the Board

Guiding Questions

DESIGN
- What do you want your final clock to look like?
- What materials or techniques do you need to complete your design?
- What ideas did you get from your conversation with your classmates?

Vocabulary

**drawing to scale** – sketching something at the actual size it will be for the final version

**gradient** – an increase or decrease in color in a gradual way

**wash** – light layer of paint

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Teaching the Lesson: Overview

**Instructional Priorities & Supporting Innovation**

These are the key lesson elements you’re expected to communicate/support today. Think of this as the blueprint of a successful lesson. When applicable we’ve included details about why an element is important for innovation.

**Do-With-Me: Movable Parts Brainstorm**

★ Support campers in **GENERATING IDEAS** for how to incorporate movable parts.

★ Support campers in continuing to finalize their **DESIGNS** by helping them incorporate the feedback they’ve received.

**Demo & Discussion: Setting Up the Background Overview**

★ **Demo the TECHNIQUES** for sketching to scale.

★ **Discuss the TECHNIQUES** for preparing and creating a background wash on Bristol board.

**Throughout the Lesson**

Support the Innovator's Mindset Challenge: **BE REFLECTIVE** – Campers consult each other before moving forward with their designs.

Why – Getting feedback on ideas in progress is a great way to push a design forward and solidify the direction of a piece.
Teaching the Lesson: Play-by-Play

Introduction (5 min)

Build excitement for today’s project
• Get campers pumped up to keep working on their clocks. Let them know they have lots of time to continue to refine their character sketches and develop them to be exactly what they want.
• Let campers know that today will be focused on finalizing their characters using each other for feedback and ideas, and preparing the backgrounds of their clocks.

Introduce the Innovator’s Mindset: BE REFLECTIVE ★
• Point to this on your Innovator’s Mindset poster.
• Define the Mindset element in the context of today’s lesson. Say: Today we’ll practice being reflective by sharing our ideas with others, and giving each other feedback about our work.

Do-With-Me: Movable Parts Brainstorm (15 min)

What You’ll Need to Cover: Overview
• Introduce the idea of incorporating the moving clock hands as part of the design.
• As a group, brainstorm how the clock hands can be an extension of the character. ★
• As a group, brainstorm how the clock hands could other elements of the scene. ★
• Introduce the partner feedback activity.
• Have partners share their sketches and brainstorm about their own movable parts. ★
• Invite a few campers to share their ideas with the class.
• Give campers a few minutes of reflection time to narrow down their ideas.

Guiding Campers
Introduce the idea of incorporating the moving clock hands as part of the design
• Since everyone’s projects will have two moving parts, it’s important that they consider how this can enhance their designs.
• Invite campers to let go of what they normally imagine when thinking about clock hands.
• Take a look at the color copies and at your example, and make sure campers notice that the hands are coming from the same point. For this reason, it will be really important how they draw their images.
• The clock hardware will also be poking through the drawing and taking up room in that area.
• In general, the clock hands should be pretty much in the center of the clock, but if campers need to move them slightly up, down, left or right to better fit the design, they can consult with an adult about it.

As a group, brainstorm how the clock hands could be an extension of the character★
• Explain that one way campers can design the clock hands is so that they are an extension of the character, like body parts, hair or accessories.
• Show campers your sample sketch, and invite them to think of at least two ways that they could add movable parts as part of the character.
• Tape your sketch to the board so the entire class can see.
• Draw out the ideas campers are sharing on tracing paper. Turn the tracing paper with your hands to show how the parts would rotate around the character and the scene.
• Point out that for this type of clock hand, the drawing would probably cover most of the clock hand hardware.
• If campers are having a hard time getting started, just pick one area, like body parts, for them to focus on.
• If campers are coming up with too many ideas to sketch, simply write them down on the board so they can reference them during their peer brainstorm.

As a group, brainstorm how the clock hands could be other elements of the scene ★
• Another way campers can design the clock hands is to create an addition or detail to the scene, like bees buzzing around a flower, or stars in the night sky.
• In this case, the clock hands would probably show, and the detail would be added toward the end of the hardware.
• Again, draw out the ideas campers are sharing and write down extra ideas on the board.
• Make sure everyone really understands the two kinds of possibilities for adding movable parts and how they would affect their designs.

Introduce the partner feedback activity
• Explain that campers will do this exercise again with each other.
• Campers will share their sketches with a partner and explain their visions and where they are so far in their ideas.
• Then, they will give the partner two ideas for adding movable parts as part of the character, and two ideas for adding movable parts as an addition or detail.
• Partners can also give general feedback about their partners’ characters.
• The person receiving the feedback should write down the ideas in his/her Maker Notebook.

Have partners share their sketches and brainstorm about their own movable parts ★
• Pair campers up and have them start sharing their sketches from yesterday.
• Then have partners give suggestions about movable parts and general feedback.
• Support BEING REFLECTIVE ★ – Ask a few questions to help direct campers’ thinking:
  ▪ What kinds of movable parts would fit most naturally with your partner’s character and design?
  ▪ What kinds of movable parts would be really challenging to add to your partner’s character and design?
  ▪ What kinds of movable parts would be funny, surprising, beautiful, or scary?
  ▪ What other ideas do you have about what your partner might add to or change about the character?
• Encourage campers to do a quick sketch to test out their suggestions for each other, and make personalized suggestions depending on where their partners’ projects are.
• Guide campers with timing, and make an announcement when partners should switch.

• You can decide if you want to have campers work in partners or small groups. Choose whatever configuration will best ensure every camper gets a chance to share and receive feedback and ideas.

Invite a few campers to share their ideas with the class
• Have a few pairs or individuals share their favorite ideas. Invite campers to hold their sketches up as they share.
• Record any new ideas for movable parts.
• Leave a minute for any questions or final ideas that campers want to share out.

Give campers a few minutes of reflection time to narrow down their ideas
• Let campers know they will have a minute or two to gather their ideas before you demonstrate how to do the other steps for today.
• Ask the Guiding Questions that support designing to help them narrow their thoughts:
  ▪ What do you want your final clock to look like?
  ▪ What materials or techniques do you need to complete your design?
  ▪ What ideas did you get from your conversation with your classmates?

Demo & Discussion: Setting Up the Background Overview (10 min)

What You’ll Need to Cover: Overview
• Give an overview of the goals for the rest of the class time.
• Demo and discuss how to prepare the Bristol for a background wash. ★
• Demo and discuss how to prepare the tracing paper so it is to scale. ★
• Demo and discuss techniques for sketching large. ★
• Discuss drawing movable parts on a separate piece of tracing paper. ★
• Demo and discuss how to create a background wash on the Bristol. ★

What You’ll Need to Cover: Details
Give an overview of the goals for the rest of the class time
• For the rest of the class time, campers will focus on sketching their final character ideas in the actual size of the clocks, and preparing their backgrounds. You’ll explain these steps in a minute.
• They will have plenty of time to do all the steps, but it’s still important that they use their time wisely.
• Getting these steps done today is important for being able to stay on track for the rest of the week.

**Demo and discuss how to prepare the Bristol for a background wash ★**
• Tell campers they’ll need to decide whether they want a square or rectangular clock shape.
• Then they’ll prepare the Bristol paper. This will be the final surface where they’ll draw the clock.
• If they want a square, they should trace the cardboard square onto the Bristol paper. Demo lining up the square with the bottom of the paper and tracing the top edge.
• If they want the rectangle, they don’t need to trace anything. The Bristol paper is already the right size.
• Next, they will make a mark in the center of the clock area for where the clock parts will go.
• Instruct campers to draw a circle about a half an inch wide to make sure they give themselves enough room.
• Campers can eyeball the center or they can use a ruler.
• Once campers are sure the circle is pretty centered they should retrace it with a heavy line, so it doesn’t get lost when they paint over it later.

**Demo and discuss how to prepare the tracing paper so it is to scale ★**
• Great! The Bristol is ready, but point out that campers don’t want to draw directly on the final paper yet. First they need finalize the sketch to scale, or at the actual size it will be.
• This is important for making sure the design will work with the shape of the clock, and it is necessary for planning around the clock parts.
• Hold up the tracing paper that campers will use to sketch the character to scale.
• If campers are making a square clock, they’ll need to trace the top of the cardboard square again on the tracing paper.
• If they’re making the rectangle clock they should imagine the entire piece of tracing paper as the clock.
• Demo how to use a little bit of blue tape to attach the tracing paper directly on top of the Bristol.
• Trace the circle in the center of the Bristol onto the tracing paper.

**Demo and discuss techniques for sketching large ★**
• Emphasize the importance of drawing large. Campers really need to try to fill the entire clock space.
• Demonstrate redrawing your sketch several times way too small, and have campers let you know when you’ve reached an appropriate size.
• One way campers can avoid drawing too small at first is to make little guide marks at about the places they think the character’s outline should start and end. Invite campers to try this technique if they want.
• Additionally, it’s important for campers to keep their sketching light and loose until they feel good about the sizing of everything.

**Discuss drawing movable parts on a separate piece of tracing paper ★**
• Emphasize that whatever campers’ movable parts are, whether those are the character’s arms, a flower’s leaves, or buzzing bees, they should not be included as part of the main sketch.
• Instead, campers will use the second piece of tracing paper to layer over the main sketch and try out different ideas for the movable parts. This piece of paper can also be cut into smaller pieces so it can be used in more ways.
• This is important because this is how they will draw their sketches on the Bristol tomorrow.
• Review the Mindset Challenge ★ – Invite campers to continue to share their sketches and ask for feedback from their original sharing partners, other teammates, or you or the TL.

**Demo and discuss how to create a background wash on the Bristol ★**
• The final step is to cover the Bristol with a gradient background wash.
• Ask: *Who knows what a painting wash is?* (A light layer of color, usually with a good amount of water.)
• Ask: *Who knows what a gradient is?* (An increase or decrease in color in a gradual way.)
• Instruct campers to pick one to three colors for the background of the scene. This is just to have a base color, and since they are working with acrylic, it will be easy to paint over.
• Campers can think about whether the gradient should go from top to bottom or side to side.
• Show campers how to start by covering the paper with a light wash of clean water so it is shiny. This will help the paint flow more.
• Then they can wet the brush and start with their first color of paint, starting at the top and moving the brush from side to side and down the length of the paper. The color should start to fade.
• Campers can add more colors, or continue working with one color until they’ve achieved a nice gradient.
• When painting a gradient, it’s helpful to keep the brush controlled and steady. Fast, frantic brushstrokes will dry out quickly and also leave the paper looking streaky.
• The end result should be a natural transition from dark to light.

Camper Work Time: Setting Up the Background (30 min)

<table>
<thead>
<tr>
<th>During Work Time Campers Will...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DESIGN</strong></td>
</tr>
<tr>
<td>1. Select a shape for the clock.</td>
</tr>
<tr>
<td>2. Trace the clock shape on the Bristol and tracing paper (for the square shape only).</td>
</tr>
<tr>
<td>3. Draw a circle in the center of the Bristol.</td>
</tr>
<tr>
<td>4. Lay the tracing paper onto the Bristol and trace the center circle.</td>
</tr>
<tr>
<td>5. Sketch the character idea to scale on a piece of tracing paper.</td>
</tr>
<tr>
<td>6. Use the second piece of tracing paper to try out different ideas and experiment with incorporating the movable parts.</td>
</tr>
<tr>
<td>7. When the character and movable parts are worked out, show their sketches to an adult for approval and feedback.</td>
</tr>
<tr>
<td><strong>CREATE</strong></td>
</tr>
<tr>
<td>8. Paint a light gradient wash on the Bristol for a background.</td>
</tr>
</tbody>
</table>

How Your TL Can Help
Talk to campers about their work and offer feedback about their sketches in progress.

Facilitate the Project Steps
**DESIGN (Steps 1-7)**
• Help campers think about what the character and scene will need to look like on the main clock shape without the movable parts.

• Support BEING REFLECTIVE 🌟 – Remind campers to incorporate the ideas and feedback they got from their partners earlier. This is their chance to test some of those good ideas out!
• Keep an eye on the size campers are drawing, and redirect those who will definitely need to create their characters on a larger scale.
• When checking campers’ sketches, be sure to notice whether they have accounted for the clock hardware hole in their designs.
• Additionally, make sure that whatever the movable parts will be have been sketched on a separate piece of tracing paper.
• Make sure campers are writing their names on their sketches!

CREATE (Step 8)
• Support campers who are having a hard time getting the gradient effect. Some campers might need to blot off some paint to help them achieve the technique.

Clean Up (5 min)
• Have campers wash and dry their brushes.
• Have campers place their painted Bristol carefully on top of their sketches. You can stack them to make space for other rotations as they dry.

Lesson Wrap Up (5 min)

Recognition and Reflection (BE REFLECTIVE)
Help campers see how they or others embraced the Innovator’s Mindset, and why this is important for innovation.

Suggested recognition and reflection activity
• Have campers pair up with their original partners or table groups, and give them a minute to share with each other (verbally or by showing) how their feedback session in the beginning was helpful. Some questions to think about:
  ▪ What ideas did you incorporate from your partner’s ideas?
  ▪ What new ideas did you come up with after your partner’s ideas?
  ▪ How would your project be different right now if you didn’t talk with your partner about it first?
• Give campers a chance to recognize each other for developing their sketches.
Day 3

Character Clocks, Part 3 of 5

Final Drawings and Starting to Paint

Campers continue to bring their custom character clocks to life.

Character being painted; note that camper clocks will be square or rectangular, not circles as shown here.

The Big Picture

Lesson Breakdown

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>5 min</td>
</tr>
<tr>
<td>Demo &amp; Discussion: Cutting, Drawing and Painting</td>
<td>10 min</td>
</tr>
<tr>
<td>Camper Work Time: Cutting, Drawing and Painting</td>
<td>40 min</td>
</tr>
<tr>
<td>Cut the painted Bristol paper into the traced clock shape. Create guidelines for the size of the character and redraw the final sketch onto the Bristol itself. Draw the movable parts on cardstock. Begin painting the character.</td>
<td></td>
</tr>
<tr>
<td>Clean Up</td>
<td>5 min</td>
</tr>
<tr>
<td>Wrap Up</td>
<td>10 min</td>
</tr>
</tbody>
</table>

GIA Focus

Innovator’s Knowledge Focus: SKILLS AND TECHNIQUES

Innovator’s Mindset Focus: BE DETERMINED – I know that innovation and mastery require effort.

What’s Next: Tomorrow (Day 4) campers will finish painting the character, assemble the clock parts, and then add movable parts to the clock hands. On Day 5, campers will finish working on their clocks and then participate in an extended group Maker share.
How to Create Today’s Project

Step-by-Step Pictorial
This is intended to help you understand how to create today’s project. It doesn’t describe how you’ll facilitate this lesson for campers. You’ll need to read the “Play-by-Play” section for this information.

Preparing the Clock Face
Note: This pictorial shows a circle clock, but campers will only be creating either rectangular or square clocks, not circles.

If you are creating a square clock, cut the Bristol along the line traced yesterday.

Glue the Bristol to the cardboard base.

Fig. 3
Poke a hole with an awl where the circle was drawn yesterday and widen it with a pencil.

Transferring and Painting the Image
• Stick a little bit of blue tape in the center of the tracing paper sketch and lay the tracing paper over the Bristol.
• Slip the pencil underneath the tracing paper to mark guidelines for the edges of the character and other scene elements.

Remove the tracing paper and redraw the character and other scenic elements using the guidelines. Don’t draw the smallest details.

Paint a base coat for the character and background.
Get Ready!

Lesson Materials
* (starred) items are choice materials; un-starred items are required for each camper

Demo & Discussion: Cutting, Drawing and Painting Overview
☐ materials from Camper Work Time, for demoing (1 set per LI)

Camper Work Time: Cutting, Drawing and Painting

cutting the clock shape
☐ 9” x 12” Bristol with background wash (1 per camper)
☐ cardboard, corrugated, 9” x 12”, for rectangular clock shapes (1 per 2 campers)
☐ cardboard, corrugated, 9” x 9”, for square clock shapes (1 per 2 campers)
☐ scissors, medium, 5”, pointed (1 per camper)
☐ glue, stick, washable (1 per camper)
☐ awl, metal (1 per 2 campers)
☐ ruler, plastic, 12”, for checking center of rectangle (1 per 2 campers)

final drawing
☐ sketch on tracing paper (1 per camper)
☐ Bristol on cardboard (1 per camper)
☐ pencil (1 per camper)
☐ eraser, vinyl, white (1 per 2 campers)
☐ paper, cardstock, white, 8.5” x 11”, for drawing movable parts (1 per 2 campers)

painting
☐ clock (1 per camper)
☐ paintbrush, flat, ⅛” (1 per camper)
☐ paintbrush, flat, ¼” (1 per camper)
☐ paintbrush, watercolor, round, #2 (1 per camper)
☐ paint, acrylic, yellow (0.5 tsp. per camper)
☐ paint, acrylic, white (0.5 tsp. per camper)
☐ paint, acrylic, red (0.5 tsp. per camper)
☐ paint, acrylic, blue (0.5 tsp. per camper)
☐ paint, acrylic, magenta (0.5 tsp. per camper)
☐ paint, acrylic, violet (0.5 tsp. per camper)

☐ paint, acrylic, green (0.5 tsp. per camper)
☐ container, deli, plastic, 16 oz., for holding paint (7 per 4 campers)
☐ spoon, plastic, for spooning paint onto palette (7 per 4 campers)
☐ container, deli, plastic, 16 oz., for water (1 per 2 campers)
☐ towel, paper, roll, sheet (2 per camper)

Preparation

Days earlier
☐ Cut cardstock in half to make 5.5” x 8.5” sheets, for drawing the movable parts (1 per camper).

Day before
☒ ☒ Set up table groups with materials for preparing the background and redrawing the sketch:
  ☒ scissors (1 per camper)
  ☒ glue stick (1 per camper)
  ☒ awl (1 per 2 campers)
  ☒ ruler (1 per 2 campers)
  ☒ pencil (1 per camper)
  ☒ eraser (1 per 2 campers)
☒ ☒ Have the 9” x 12” and 9” x 9” cardboard accessible so campers can grab the shapes they need and bring them to their tables.

Morning of
☒ ☒ Set up the painting materials. You can either have campers bring the paint directly over to their table groups once they are ready to start painting, or they can visit a paint station and spoon colors onto their palettes (see Suggested Materials Management). Either way, they will need:
  ☒ paper plates for palettes (1 per camper)
  ☒ acrylic paint in deli containers, one spoon in each container (7 per 4 campers)
  ☒ ⅛”, ¼” and #2 paintbrushes (1 of each per camper)
  ☒ deli containers with water (1 per 2 campers, should be at table groups)
  ☒ paper towels (2 per camper, should be at table groups)
Suggested Materials Management
• To leave more room on the tables, set up paint stations around the room where campers can spoon paint onto their palettes and bring them back to the table.
• This practice will probably also help with keeping paint colors clean, as campers will probably be more likely to place spoons back in the right paint colors.
• It’s essential that the paint stations are set up so that multiple campers can access them at the same time so there’s not a line.

Suggestions for Large Classes
None

Check In With Your TL
Make sure your Tls are clear about their role in helping today’s lesson run smoothly. Specific ways Tls can help today are listed in the dotted overview boxes throughout the lesson.

On the Board

Goals for the Day
1. Cut and adhere Bristol to the cardboard background
2. Poke a hole in the center for clock parts
3. Sketch the character design on the Bristol
4. Begin painting

Guiding Questions

BE DETERMINED
• What can you double-check about the step you’ve just completed before moving on?
• Does anything need to be adjusted about the size or position of your sketch?
• How can you sketch to make sure your image is easy to paint and your paper stays nice and smooth?

Vocabulary
None today

Teaching the Lesson: Overview

Instructional Priorities & Supporting Innovation

These are the key lesson elements you’re expected to communicate/support today. Think of this as the blueprint of a successful lesson. When applicable we’ve included details about why an element is important for innovation.

Demo & Discussion: Cutting, Drawing and Painting Overview
★ Demo the TECHNIQUES for cutting and attaching the Bristol to the cardboard, and poking a hole for the clock parts.
★ Demo the TECHNIQUE for creating size guidelines to redraw the character on Bristol.
★ Demo and discuss TECHNIQUES for using acrylic paint.

Throughout the Lesson
★ Support the Innovator’s Mindset Challenge: BE DETERMINED – Campers complete each step of today’s project (cutting, redrawing, painting) thoroughly and purposefully. Why – It’s tempting for campers to rush through preliminary steps. This challenge supports campers in making sure they set themselves up for success and helps them recognize that putting in effort on all parts of a project leaves them with a more impressive final result.
Teaching the Lesson: Play-by-Play

Introduction (5 min)

Welcome campers and make a quick story connection
How’s Lucy doing? (She’s stuck back in Land Land.) Well, remember that nothing is impossible with a little VISION and COLLABORATION. Let’s keep working on those designs to personalize your rooms so we can show them off to Lucy at Friday’s Faire.

Build excitement for today’s project
• Tell campers that they’ve spent two days planning and refining, and now they are ready to move on to the actual clock surface.
• Today they will focus on getting the basic clock structure set up so they can redraw their characters and start painting!

Introduce the Innovator’s Mindset: BE DETERMINED ★
• Point to this on your Innovator’s Mindset poster.
• Define the Mindset element in the context of today’s lesson. Say: Again, there is some preparation that needs to be done before you can jump right into painting, so today we’re going to practice being determined. You might be tempted to rush through the cutting, gluing and drawing in order to start painting, but taking the time to set yourself up for success will pay off in the long run. We’re going to help each other complete each step thoroughly.

Demo & Discussion: Cutting, Drawing and Painting
Overview (10 min)

What You’ll Need to Cover: Overview
• Review the goals for the day.
• Demo how to cut the Bristol, attach it to the cardboard and punch a hole for the clock parts. ★
• Demo how to create size guidelines to redraw the character on Bristol. ★
• Discuss things to keep in mind while redrawing the character on Bristol. ★
• Discuss drawing and cutting the movable parts.
• Review some basic characteristics of acrylic paint. ★
• Demo and discuss tips for painting with acrylic paint. ★

What You’ll Need to Cover: Details
Review the goals for the day
• Emphasize that there are certain things everyone should finish today in order to stay on track for the week.
  • Cutting and adhering the Bristol paper to the cardboard background
  • Poking a hole in the center for the clock parts
  • Sketching the character design on Bristol
  • Beginning to paint
• Campers don’t need to rush, but they do want to prioritize getting the first couple of layers of color down on their characters today.
• Some campers may get further along than others, and that’s okay.
• If one of the steps before painting is taking a long time, campers should reach out to an adult for help to move along.
• You will demo how to do each of these steps now.

Demo how to cut and attach the Bristol to the cardboard ★
• Let campers know that if they’ve chosen the square clock they’ll need to follow the line they traced yesterday to cut it to size.
• Review the Mindset Challenge ★ – Emphasize cutting carefully and precisely. Campers will be gluing the paper directly to the cardboard, and they don’t want any of the cardboard to be showing.
• Next, show campers how to rub the glue stick all over the cardboard base, especially the edges!
• Carefully line up the Bristol and firmly press it onto the cardboard. Add a little more glue under there if necessary.
• Review the Mindset Challenge ★ – Again, emphasize really taking their time to make sure the edges are lined up and sealed.

Demo how to punch a hole for the clock parts ★
• Poke a hole with the awl where you drew your circle yesterday.
• Then stick a pencil through from the front to the back to make sure the hole is smooth and large enough.
• Stress that campers should be careful! The awls are super sharp and can be dangerous. They should always check to make sure their fingers are out of the way.
Demo how to create size guidelines to redraw the character on Bristol ★
- Tell campers that order to keep the right sizing for their sketches, they will use guidelines to mark where certain parts of their drawings should be. 
- Demo how to stick a piece of blue tape in the center of the tracing paper sketch, and lay the sketch directly over the clock, lined up with the edges.
- Carefully lift the tracing paper edges back to where the outline of the character is, and make little marks all the way around.
- Reiterate that you’re just using the tracing paper to draw guidelines so you know where the edges of your character are; you’re not trying to redraw the entire character yet.
- Remove the tracing paper and evaluate whether you think you can start sketching based on what you’ve marked. If not, add more guidelines.
- Tell campers they can also draw guidelines for background elements, but the main focus should be on the character.

Discuss things to keep in mind while redrawing the character on Bristol ★
- Review the Mindset Challenge ★ – Recognize that campers may be tempted to rush through sketching again so they can get to painting, but it will be really important for them to draw carefully and thoughtfully this final time.
- Campers should sketch lightly on the Bristol and pay attention to the size of the sketch.
- If they erase aggressively or often, the paper can start to pull apart, which will make it very difficult to paint nicely.
- Campers should check where the hole is for the clock parts and make minor adjustments to the drawing as needed.
- Finally, let campers know they don’t need to get carried away with adding all the little details in the face, etc.
  - Today’s main goal is to get the basic sketch laid out at the right size.
  - Additionally, it’s likely that tiny details they add will just get painted right over with the basic colors for the character.

Discuss drawing and cutting the movable parts
- Inform campers they will also need to draw their movable parts on cardstock and cut those out.
- Demo how to use the sample clock parts on the table as a reference to get an idea of how the movable parts will be attached to the hardware. 
- Assure campers that they can alter their designs tomorrow after assembling if they’ve made something too small or too big.

- It’s easier to test out the movable parts once they are actually assembled.

Review some basic characteristics of acrylic paint ★
- Acrylic paint is easy to control and you don’t need a lot of water when working with it.
- You don’t need a lot of paint; a small amount of paint will go a long way, especially since the clocks are not that big.
- It is opaque, which means it’s solid – you can easily paint right over one color. Therefore, mixing needs to happen on the palette, not on the paper itself.
- Acrylic paint also dries quickly, which has both advantages and disadvantages.

Demo and discuss tips for painting with acrylic paint ★
- Before campers get any paint, the brush should be damp but not dripping wet. Show campers how to start with a little bit of paint on the tip of the brush.
- Demo how to move the brush so you have brushstrokes going in the same direction. This will have a better overall effect on the painting and help pull it together.
- Additionally, two layers are usually needed for a smooth coat and coverage.
- Tell campers that if they “mess up” they can just leave it to dry for a minute or two, and then they will usually be able to paint right over it.
- As campers are painting, they should notice the amount of paint on their brushes.
  - If things are very gloppy, and it’s hard to stay within the lines they’ve drawn for themselves, they probably have too much paint.
  - If dry bristles are scraping the Bristol and they are having a hard time spreading the paint, they probably don’t have enough paint.
- Advise campers to use the smallest brush for fine edges and lines.
Camper Work Time: Cutting, Drawing and Painting (40 min)

During Work Time Campers Will...

**DESIGN**
1. If creating a square clock, cut the Bristol paper along the traced clock outline.
2. Adhere the Bristol to the cardboard base shape.
3. Punch a hole in the center of the paper, and in the cardboard.
4. Lay the tracing paper sketch over the Bristol, and pull it back to mark off size guidelines to redraw the character on the Bristol.

**CREATE**
5. Redraw the character and background on the Bristol, leaving out the tiny details.
6. Draw and cut the movable parts on 8.5\(\times\)5.5\" cardstock.
7. Prepare a palette and begin painting the character.

How Your TL Can Help
- Work with slower campers to ensure everyone completes the main steps that need to be finished today.
- Help refresh water as necessary.

Facilitate the Project Steps

**DESIGN (Steps 1-4)**
- Support campers in creating centered holes in the rectangular cardboard.
- Remind campers to use blue tape to help them keep their tracing paper sketches in place while they create the guidelines.

**CREATE (Steps 5-7)**
- Remind campers to use a light hand when they are redrawing their sketches.
- Encourage campers to lay out their movable parts on their clocks and take the time to make any really obvious changes today if they have time. For example, if it’s clear something should be double the size, they should redraw it now if they can. There should be plenty of extra cardstock.

- Keep an eye on water that needs to be refreshed, and whether the table groups are getting crowded with materials.
- Remind campers to notice how much paint is on their brushes and adjust accordingly.

Support BEING DETERMINED ★
Suggest strategies that help and encourage campers to be determined

Some specific strategies for today:
- Tracking their progress so they can see how much they've done and how much more they still need to do. You can support this by inviting campers to rewrite their checklists in their Maker Notebooks. Alternatively, you could track the progress of the class as a whole on the board.
- Encouraging campers to check each other’s work before moving on to the next step.
- Evaluating one component at a time and fixing it if necessary before moving on to the next.

Recognize determined campers
This encourages the camper and helps others see how they can be determined as well. Recognition can be just verbal or include some kind of physical award. Be sure to be specific about how you see campers being determined. Some ways you might see determination today:
- Using any of the strategies mentioned above
- Taking their time to do all the design/prep steps carefully and thoroughly
- Checking and rechecking their work

Ask the Guiding Questions that support being determined

Clean Up (5 min)

- Have campers wash and dry their brushes.
- Have campers make sure they store all their pieces together. Sketches and movable parts can be placed inside their Maker Notebooks so they don’t get lost.
Lesson Wrap Up (10 min)

Recognition and Reflection (BE DETERMINED)
Help campers see how they or others embraced the Innovator’s Mindset, and why this is important for innovation.

Suggested recognition and reflection activity
- Have campers share about each of the steps for today. For each step (preparing the clock shape, redrawing the sketch, starting to paint), ask:
  - Did you run into any challenges with this part? What were they?
  - How did you overcome your challenges?
  - Are you happy with how you solved the problem?
  - How did taking the time to solve this problem help you with the next step?/How will it help you with the next steps throughout the week?
- Have campers recognize each other for their determination and focus. Allow a few minutes for campers to give shout-outs to their classmates: specifically if they saw anyone being particularly determined, taking their time, working carefully, and staying positive even if things were taking a long time.
Day 4
Character Clocks, Part 4 of 5
Assembling and Finishing
Campers finish painting the character, assemble the clock parts, and then add movable parts to the clock hands.

Adding details to the clock

The Big Picture

Lesson Breakdown

<table>
<thead>
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<th>Activity</th>
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<td>Demo &amp; Discussion: Moving Forward and Numbers Discussion</td>
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</tr>
<tr>
<td>Camper Work Time: Continue Painting and Assembling</td>
<td>40 min</td>
</tr>
<tr>
<td>Finish painting the character. Assemble the clock parts with the LI’s help and then add the movable parts to the clock hands and test them. Start adding clock numbers if there is time.</td>
<td></td>
</tr>
<tr>
<td>Clean Up</td>
<td>5 min</td>
</tr>
<tr>
<td>Wrap Up</td>
<td>10 min</td>
</tr>
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GIA Focus
Innovator’s Process Focus: TEST AND EVALUATE
Innovator’s Mindset Focus: BE DETERMINED – I persevere until I achieve my goal.

What’s Next: Tomorrow (Day 5) campers will finish working on their clocks and then participate in an extended group Maker share.
How to Create Today’s Project

Step-by-Step Pictorial
This is intended to help you understand how to create today’s project. It doesn’t describe how you’ll facilitate this lesson for campers. You’ll need to read the “Play-by-Play” section for this information.

Painting

Fig. 1
Complete the character and background by adding details.

Fig. 2
A Sharpie outline can be added at this time if desired.

Fig. 3

Assembling the Clock Hardware and Movable Parts

Fig. 4

Fig. 5
Assemble the clock hardware (You’ll circulate while campers are working and do this with each table.)

Temporarily attach the movable parts onto the clock hands with blue tape.

Test them out by attaching the hands to the rest of the clock hardware.

Spin the hands around to make sure they can spin freely.
If desired, try different movable parts or adjust the parts you have.

Numbers (If There Is Time)

Test out a number design on tracing paper.
Get Ready!

**Lesson Materials**
- (starred) items are choice materials; un-starred items are required for each camper

**Demo & Discussion: Moving Forward and Numbers Discussion**
- sample clock, *for demoing* (1 per LI)
- copy, color, *Ideas for Hours on Clock Face* (1 per 4 campers)

**Camper Work Time: Continue Painting and Assembling**

**assembling clock parts**
- clock movement, battery powered, 7/8" shaft diameter (1 per camper)
- campers’ clocks, with a hole through paper and cardboard (1 per camper)
- tape, blue, 1", *for securing small parts if necessary* (2" per camper)
- bag, plastic, Ziploc, sandwich, *for holding extra parts* (1 per camper)
- battery, AA (1 per camper)

**painting**
- paintbrush, flat, ½" (1 per camper)
- paintbrush, flat, ¾" (1 per camper)
- paintbrush, watercolor, round, #2 (1 per camper)
- paint, acrylic, yellow (0.5 tsp. per camper)
- paint, acrylic, white (0.5 tsp. per camper)
- paint, acrylic, red (0.5 tsp. per camper)
- paint, acrylic, blue (0.5 tsp. per camper)
- paint, acrylic, magenta (0.5 tsp. per camper)
- paint, acrylic, violet (0.5 tsp. per camper)
- paint, acrylic, green (0.5 tsp. per camper)
- container, deli, plastic, 16 oz., *for holding paint* (7 per 4 campers)
- spoon, plastic, *for spooning paint onto palettes* (7 per 4 campers)
- container, deli, plastic, 16 oz., *for water* (1 per 2 campers)
- towel, paper, roll, sheet (2 per camper)
- movable parts, on cardstock (1 set per camper)
- tape, blue, 1", *for testing movable parts before assembling* (2" per camper)
- pencil, #2 (1 per camper)

**Preparation**
- **Day before**
  - Keep the space for the paint stations set up.
  - Make sure there is enough space in the circle to demo the clock assembly so that everyone can see clearly.
  - Have camper projects and clock parts easily accessible for quick distribution during class time. One idea could be to have all the projects in that rotation lined up on the floor, along desks, etc. and have campers grab them in 30 seconds or less and return back to the circle when it’s time.

- **Morning of**
  - Fill the paint stations just like yesterday, including water in deli containers.
  - Refill the water buckets as necessary.

**Suggestions for Large Classes**
- None

**Check In With Your TL**
Make sure your TLs are clear about their role in helping today’s lesson run smoothly. Specific ways TLs can help today are listed in the dotted overview boxes throughout the lesson.

**On the Board**
- **Draw**
  - Draw a picture of and label the clock parts that campers will use.

**Design Goals**
- Today’s goals:
  - Complete painting the character
  - Assemble all the clock parts and make sure they work
  - Temporarily attach the movable parts to the clock hands and make any adjustments necessary

- Keep going:
  - Paint the background/environment
  - Permanently attach the movable parts to the clock hands
  - Sketch out some ideas for numbers
Guiding Questions
BE DETERMINED
• What is the most important thing for you to focus on today?
• What is the next thing you should work on?
• How can you bring your character to a level of finish you’re happy with?
• Do you need to adjust your movable elements or clock parts?

Vocabulary
None today

Teaching the Lesson: Overview

Instructional Priorities & Supporting Innovation

These are the key lesson elements you’re expected to communicate/support today. Think of this as the blueprint of a successful lesson. When applicable we’ve included details about why an element is important for innovation.

Demo & Discussion: Moving Forward and Numbers Discussion
★ Discuss EVALUATING the state of the paintings and introduce TECHNIQUES for bringing them to completion.
★ Discuss TESTING movable clock parts.
★ Introduce the CONCEPT of adding numbers to the clock as part of the design.

Camper Work Time: Continue Painting and Assembling
★ Lead individual table groups through the TECHNIQUES needed for assembling the clock parts and battery.

Throughout the Lesson
★ Support the Innovator’s Mindset Challenge: BE DETERMINED – Campers do what it takes to meet today’s key goals: finishing their characters and making sure their clock parts are working.
Why – Supporting campers to put in sustained effort today will ensure they’re on track to complete their projects in a way they can be proud of!
Teaching the Lesson: Play-by-Play

Introduction (5 min)

Build excitement for today’s project
• Let campers know they’ve got two more days to finish their clocks!
• Many campers may be at different places today, which is great. This is the point when campers can prioritize what needs to happen for their particular projects and designs.

Introduce the Innovator’s Mindset: BE DETERMINED ★
• Point to this on your Innovator’s Mindset poster.
• Define the Mindset element in the context of today’s lesson. Say: We have two important goals that need to get done today, so today is all about being determined to get them done in a way we can be proud of!

Demo & Discussion: Moving Forward and Numbers

Discussion (10 min)

What You’ll Need to Cover: Overview
• Review the goals for the day.
• Discuss how to move the painting forward and evaluate if it’s done. ★
• Demo how to attach and test the movable parts. ★
• Introduce and discuss adding numbers to the clock face. ★

What You’ll Need to Cover: Details

Review the goals for the day
• Refer to the goals written on the board, or ask a volunteer to read them out for you:
  ▪ Complete painting the character
  ▪ Assemble all the clock parts and make sure they work
  ▪ Temporarily attach the movable parts to the clock hands and make any adjustments necessary

• Emphasize that it’s important for campers to complete these goals today.
• If campers reach those goals, there’s a lot more to do. Have a volunteer read the “Keep going” possibilities on the board:
  ▪ Paint the background/environment
  ▪ Permanently attach the movable parts to the clock hands
  ▪ Sketch out some ideas for numbers
• Encourage campers to notice where they are and what they should prioritize. Assure campers that they can consult with an adult if they aren’t sure what they should do next.

Discuss how to move the painting forward and evaluate if it’s done ★
• One key thing campers need to evaluate is whether the character is completely painted and how much more detail they want to get into.
• Let campers know that a great way to help pull the painting together even if they’ve just painted the most basic layers is to outline everything with Sharpie.
  ▪ This helps redefine the edges and can sharpen up the entire painting. This step is optional, but it’s a great technique that artists use to finish up their work.
  ▪ Campers can ask an adult for advice if they’re not sure if they are at a good point to outline their work or not.
  ▪ Be sure to mention that the outlining does take a little bit of time, so campers should evaluate if they have enough time to outline the entire piece, or just the character, etc.
• For painting, encourage campers to think about what will make the biggest impact in terms of helping the character feel finished.
• If campers feel pretty finished, encourage them to use the time to add a few extra-special finishing touches.
• Review the Mindset Challenge ★ – Encourage campers to do what they can in the time they have so that by the end of today the character is as good as it can be.

Demo how to attach and test the movable parts ★
• Explain that you and the TL will be coming around to each table group to help everyone assemble their clock parts in small groups.
• Review the Mindset Challenge ★ – Campers will probably need to make adjustments and troubleshoot as they put everything together. Remind them to stay determined. Getting their clocks working today is key!
• Explain that campers need to make sure the movable parts on the clock hands aren’t overlapping or getting stuck before permanently attaching them.

• So, first they will use a small amount of blue tape to attach the movable parts temporarily to the hands. Then they’ll test by rotating the hands around.

• Show an example of the clock parts lightly attached with blue tape.

• Demo rotating the hands around to check whether the parts overlap.

• Show how if they do you can very gently bend or curve the clock hand up or down so they don’t run into each other.

• Let campers know once the design is working properly they can attach the movable part permanently with glue. They can also wait and do this tomorrow.

**Introduce and discuss adding numbers to the clock face ★**

• Have campers share what other part of the clock they are still missing. (The numbers!)

• Explain that the hours on a clock can be represented by numbers, symbols, shapes or other designs.

• Show the *Ideas for Hours on Clock Face* color copy (below).

![Clock Faces Image]

• Have campers share what they notice about the different ways artists and designers have chosen to represent the hours on these clocks. (There are examples of cardinal and Roman numerals, shapes, colors, and symbols. Sometimes all twelve numbers are represented, sometimes only two or four, etc.)

• Point out that the numbers are an opportunity to add to their designs, and that they should match the theme of the clock.

• Have campers share any other ideas they have for adding numbers.

• Suggest how campers might add numbers to their clocks:
  - Directly drawing or painting on the Bristol
  - Cutting something out of cardstock
  - Attaching numbers directly to the clock
  - Extending out from the edges (this could be a good solution if campers have already created a specific scene or environment and don’t want to add anything on top of it)

• One main aspect that they should pay attention to is placing the numbers on straight axes. Encourage campers to use a ruler to mark off at least where the 12, 3, 6, and 9 points should go for reference.

• Have campers think for a moment before they move to the tables to start working. Ask:
  - *Do you want numbers or symbols on your clock?*
  - *How many numbers or symbols do you want? Twelve, four, two, one?*
  - *How can your numbers/symbols match your theme?*
  - *How will you create them? Paint, draw, attach as an extension, etc.*

• Finally, remind campers that numbers are not the priority today. Most likely they’ll only have time to start sketching out their ideas. That’s fine. They’ll have time to add numbers tomorrow.

**Camper Work Time: Continue Painting and Assembling (40 min)**

*During Work Time Campers Will...*

**CREATE (painting)**

1. Continue painting the character if it is not finished.

**CREATE (assembling) ★**

2. When the LI visits the table group, assemble the clock parts.

**CREATE (movable parts) ★**

3. Test out the movable parts by taping them onto the clock hands.

4. Adjust the movable parts if necessary.

5. Attach the movable parts with glue once they work.

**CREATE (other details and numbers) ★**

6. Finish the background/scenic elements if they are not finished.

7. If there’s more time, begin thinking about/sketching numbers for the clock face on the tracing paper sketch.
How Your TL Can Help

- Help campers adjust their movable parts.
- Facilitate for the rest of the campers as you go around to table groups to help campers assemble their clock parts.

Facilitate the Project Steps

CREATE (painting) (Step 1)
- Help campers evaluate what thing(s) they should be focusing their energy on today.

CREATE (assembling) (Step 2) ★
- As soon as campers start working, begin moving to the table groups to assemble the clock parts. You want to make sure you have enough time to actually work with each group of campers and leave enough room for troubleshooting.
- Instruct campers to open the packaging carefully and keep everything together. Use a pencil to poke through the back if necessary.
- Essentially, you are following the steps on the back of the package, so campers might want to hold on to those instructions.
- The parts assemble best if the clock is resting flat on the table. This makes it easier to press down straight.
- In particular, the hour hand needs to be pressed down until it’s not wobbly.
- Have campers help each other along, especially if some campers are moving more quickly.
- Once the parts are assembled, have campers insert the battery to check that the clock ticks and the hands rotate.
- At each group, let campers know that if they are still working on painting and drawing, they may want to take the hands off again.
- If they do need to detach parts for any reason, emphasize how important it is for campers to place their pieces in the Ziploc sandwich bags. They can write their initials on the bags with Sharpie.
- They won’t get replacement parts, so they have to keep track of what they’ve got!

CREATE (movable parts, other details, and numbers) (Steps 3-7) ★
- If campers are ready to attach movable parts to their clock hands before you get to their tables they can do so, but they shouldn’t glue anything on permanently until they can try the hands out on their assembled hardware.
- Many campers will probably need assistance with adjusting their movable parts.
- Make sure campers are not moving on to background elements or numbers until today’s main priorities are done.

Support BEING DETERMINED ★

Suggest strategies that help and encourage campers to be determined
Some specific strategies for today:
- Recruiting help with/advice about how to best finish painting or how to troubleshoot the clock parts
- Celebrating each step as it’s completed
- Checking in on the time to help them decide if it’s time to move on

Recognize determined campers
This encourages the camper and helps others see how they can be determined as well. Recognition can be just verbal or include some kind of physical award. Be sure to be specific about how you see campers being determined. Some ways you might see determination today:
- Using any of the strategies mentioned above
- Working through challenges with the clock parts
- Putting in effort and care as they finish their characters

Ask the Guiding Questions that support being determined

Clean Up (5 min)

Make sure everyone’s clock parts are together and labeled.
Lesson Wrap Up (10 min)

Recognition and Reflection (BE DETERMINED)
Help campers see how they or others embraced the Innovator’s Mindset, and why this is important for innovation.

Suggested recognition and reflection activity
• Have campers celebrate what they were determined to accomplish today.
• Have campers give you a thumbs-up if they:
  ▪ Finished their characters
  ▪ Finished the background
  ▪ Outlined their work in Sharpie
  ▪ Successfully assembled their clock parts
  ▪ Tested their movable parts
  ▪ Started thinking about adding numbers
  ▪ Added numbers
• Give campers a minute to share what things were challenging for them today and what they did to problem-solve. Recognize campers for pushing through their challenges to reach their goals!
• Ask campers to share with a neighbor what their main focus for tomorrow will be to finish up their clocks.
Day 5
Character Clocks, Part 5 of 5
Finishing and Wrap Up
Campers finish working on their clocks and then participate in an extended group Maker share.

The Big Picture

Lesson Breakdown

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GIA Focus
Innovator’s Process Focus: IDENTIFY THE GOAL and SHARE
Innovator’s Mindset Focus: BE REFLECTIVE – I take time to think about what is and isn’t working in my design
How to Create Today’s Project

Step-by-Step Pictorial

This is intended to help you understand how to create today’s project. It doesn’t describe how you’ll facilitate this lesson for campers. You’ll need to read the “Play-by-Play” section for this information.

Clock Numbers

Fig. 1
Test out a number design on tracing paper.

Fig. 2
Use a ruler to mark 12, 3, 6, and 9 o’clock.

Fig. 3
Additional Elements and Finishing Touches

Add finishing touches.

If desired, add extensions that extend from the edges of the clock.

If the edges of the paper are not staying flat, add more glue and binder-clip the edges until the glue is fully dried.
Get Ready!

**Lesson Materials**
* (starred) items are choice materials; un-starred items are required for each camper

**: Intro Materials**
- sample clock (1 per LI)

**Demo & Discussion: Setting Design Goals**
- sample clock (1 per LI)

**Camper Work Time: Achieving Design Goals**
- individual camper clocks (1 per camper)
- paper, cardstock, white, 8.5" x 11", *for extensions* (1/2 per camper)
- pencil, #2 (1 per camper)
- scissors, medium, pointed (1 per camper)
- glue stick, washable (1 per camper)
- pencil, colored, asst. colors, 12 pk. (1 per 4 campers)
- marker, washable, asst. colors, set of 8 (1 per 4 campers)
- all painting materials from yesterday

**Preparation**

**Days earlier**
- Cut cardstock in half to make 8.5" x 5.5" sheets to be used for creating extensions (1 per camper).

**Day before**
- Set up the painting stations as before.
- Think about if you want to rearrange your classroom at all to facilitate a share at the end or for the Friday closing setup.

**Morning of**
- Fill paints and water at the painting station.

**Suggested Materials Management**
We typically try to avoid using paint or wet media on Friday, but the way campers are painting (with the fast-drying acrylic) should not cause much of a problem with wet projects at the end of the day. However, just keep an eye on things.

**Suggestions for Large Classes**
None

**Check In With Your TL**
Make sure your TLs are clear about their role in helping today’s lesson run smoothly. Specific ways TLs can help today are listed in the dotted overview boxes throughout the lesson.

**On the Board**

**Guiding Questions**

**IDENTIFY THE GOAL and BE REFLECTIVE**
- What will make your clock look the most finished for the stage it’s in?
- What parts don’t feel quite done to you yet?
- What other details/refinements can you add to the character, background or clock hands?
- What kind of 2D/3D elements can you add to take your clock to the next level?
- What steps are you taking first/next to reach your goal?
- (If something is not going as planned) Will you modify your technique or revise your goal? How?

**Vocabulary**
None today
Teaching the Lesson: Overview

Instructional Priorities & Supporting Innovation

These are the key lesson elements you’re expected to communicate/support today. Think of this as the blueprint of a successful lesson. When applicable we’ve included details about why an element is important for innovation.

Do-With-Me: Setting Design Goals
★ Support IDENTIFYING THE GOAL by giving campers prompts to guide their thinking about where their clocks need the most focus.

Demo & Discussion: Reflection Overview
★ Demo giving meaningful and less meaningful feedback to support valuable SHARING.

Throughout the Lesson
★ Support the Innovator’s Mindset Challenge: BE REFLECTIVE – Campers think about what they need to do to push their projects to the next level before starting, and then take time to reflect on their final creations. Why – Supporting campers to reflect before this last work day will help them determine what needs to be done to achieve the results they want. Having them reflect on their final pieces gives them a chance to celebrate what went well and recognize that art is never done and is always a work in progress!

Teaching the Lesson: Play-by-Play

Introduction (5 min)

Welcome campers and make a quick story connection
The Maker Faire is today! Do you think Lucy will get there in time? I sure hope so. Let’s put the finishing touches on the incredible creations you all designed for your rooms so we’ll be ready to show Lucy when she arrives.

Build excitement for today’s project
• Congratulate campers for working so hard all week!
• Today they will have some time to add some finishing touches to their projects based on goals that they will set for themselves.
• Let campers know a lot of time is also set aside for an extended share and reflection, so they have time to enjoy each other’s creations and spend some time reflecting about the week.

Introduce the Innovator’s Mindset: BE REFLECTIVE ★
• Point to this on your Innovator’s Mindset poster.
• Define the Mindset element in the context of today’s lesson. Say: We’ll finish out the week by being reflective by thinking about our designs in two different ways. Before we start, we’ll reflect on the status of the project to help us make a plan for what we should focus on this last day. Then we’ll take time to reflect on the results of all our hard work this week!
Do-With-Me: Setting Design Goals (10 min)

What You'll Need to Cover: Overview

IDENTIFY THE GOAL
• Give an overview of what's left for today.
• Review how to add numbers to the clock.
• Discuss adding extensions to the clock.
• Lead campers through reflecting on the status of their work. ★
• Have campers write down their goals and their first steps. ★

How Your TL Can Help
Help campers write goals.

Guiding Campers

Give an overview of what's left for today
• Review today's priority goals.
  ▪ Finishing touches for their characters and main scenes
  ▪ Getting movable parts permanently attached and functional
  ▪ Adding hours to the clock face
• Let campers know additional elements are options if they're done with the main priorities.

Review how to add numbers to the clock
• Some campers may already have a sketch for a number design and some may not. That's fine. They can start sketching today if they didn't get a chance to do it yesterday.
• Review some of the ideas from yesterday about how campers might add numbers to their clocks.
• Directly drawing or painting on the Bristol
• Cutting something out of cardstock
• Attaching numbers directly to the clock
• Extending out from the edges (this could be a good solution if campers have already created a specific scene or environment and don’t want to add anything on top of it)
• Remind campers to use a ruler to mark off straight axes for at least where the 12, 3, 6, and 9 points should go for reference.

Discuss adding extensions to the clock
• Explain that one way to add to the clock is to create extensions with cardstock that go beyond the basic rectangle or square shape.
• Use your sample clock as an example and give campers a few ideas of what you could do. This could be scenic or simply designs or shapes, or other characters, animals, etc.
• Advise using markers and colored pencils. Paint will take longer and may be too wet to attach by the end of class.
• Let campers know it can be okay to paint a little, but they should use discretion.

Lead campers through reflecting on the status of their work ★
• Inform campers they will take some time to reflect on what they want to get done today based on where their clocks are.
  ▪ They should realistically evaluate where they currently are in the creation process, what their visions for the clocks are, and what will push their clocks to the next level.
  ▪ They should also think about how fast or slow they work.
  ▪ If campers are very far along, they should really push themselves to think about what they can take on to create an amazing finished product.
  ▪ Remind them that they can always adjust their goals once they've started working if that's necessary.
• Make sure campers know they have 30 minutes to work.
• Ask the Guiding Questions to help campers come up with personal goals:
  ▪ What will make your clock look the most finished for the stage it's in?
  ▪ What parts don’t feel quite done to you yet?
  ▪ What other details/refinements can you add to the character, background or clock hands?
  ▪ What kinds of 2D/3D elements can you add to take your clock to the next level?

Have campers write down their goals and their first steps ★
• Tell campers they’ll have two minutes to formally write down their goals in their Maker Notebooks.
• Have them write a personal goal (this can be simple words or a phrase; it doesn’t have to be a complete sentence).
• Write a rough sample on the board so campers have an idea of what they’re going for. (For example: Personal Goal — Add hours on clock face, redesign one movable part.)
• Then have campers think about their personal goals and ask:
  ▪ What needs to happen for you to reach your personal goal(s)?
  ▪ Which of those things needs to happen first?
• Have them write the first thing they’re going to do when they start working. (For example: First Step – Test out spacing of hour symbols on clock face.)
• Remind campers that they may end up altering their goals as they are working, and that’s okay!
• Review the Mindset Challenge ★ — Congratulate campers on reflecting on where their projects need the most work and encourage them to continue to evaluate the status of their work as they go. This will help them see if and how they might adjust their goals.

**Camper Work Time: Achieving Design Goals (30 min)**

### During Work Time Campers Will...

**CREATE**
1. Finish the character if necessary.
2. Add hours to the clock face if necessary.
3. Add other details depending on individual goals.

**Extension**
- Campers who are done early can come up with names for their clocks, and design a business card, or a logo, etc. for their creations.
- They could also do some other sketches for their characters, and start thinking about other versions of their clocks.

**How Your TL Can Help**
- Work with campers who are behind to make sure they finish their characters today.
- Check in with campers about their goals.

### Facilitate the Project Steps

**CREATE (Steps 1-3) ★**
- Ask campers specifically about the goals they wrote down and where they are with reaching them, and help them revise if necessary.
- Help campers stay aware of timing so they are able to clean up quickly when the time comes so you can move on to the Wrap Up. Give campers 10-, five-, and one-minute warnings.

**Support BEING REFLECTIVE ★**

Suggest strategies that help and encourage campers to be reflective

Some specific strategies for today:
- Looking at their work from afar or from a different perspective (like looking at a piece from 20 steps back or turning a piece upside down). This is a good trick artists use to help them notice new things about their pieces.
- Stopping occasionally to review the personal goals they wrote down.

**Recognize reflective campers**

This encourages the camper and helps others see how they can be reflective as well. Recognition can be just verbal or include some kind of physical award. Be sure to be specific about how you see campers being reflective. Some ways you might see reflection today:
- Using any of the strategies mentioned above
- Adjusting their goals based on how the work time is going

**Ask the Guiding Questions that support being reflective**

### Clean Up (5 min)

- As mentioned previously, be diligent about time reminders and have a clear plan for clean up and regrouping.
- Decide ahead of time if materials need to be moved and where they need to be moved to. Remember, you will need to have the classroom ready to go again for the next rotation.
Demo & Discussion: Reflection Overview (5 min)

What You’ll Need to Cover: Overview
- Discuss the importance of sharing work and receiving feedback. ★
- Discuss and model good and bad feedback. ★
- Explain the silent observation reflection activity. ★
- Explain the verbal sharing reflection activity. ★

What You’ll Need to Cover: Details
Discuss the importance of sharing work and receiving feedback ★
- Let campers know that they will celebrate this awesome week with a really important step in the artistic/Innovator’s Process, sharing the products of their hard work.
- Remind campers that when they share their art they can inspire others and they are helping add beauty to the world!
- Feedback is a great way for artists to get ideas for how they might improve the piece or for what they might try in another project in the future.
- Point out that even though campers won’t have time to continue working on their clocks at camp, they’re welcome to continue working on them at home. They can also just take the ideas they get from today’s reflection and think about them the next time they do a project.

Discuss and model good and bad feedback ★
- Point out that everyone has had a different experience, and their clocks will be at different points. Campers want to make sure their comments are helpful, thoughtful, and respectful of everyone’s hard work.
- Explain that good feedback is specific and is about helping the artist learn, not about putting the artist down.
- Model giving feedback about your own clock and about someone else’s clock. Work with a prompt like “What are you most happy with on your clock?” or “What is one thing you like about your partner’s character?”
- Demo examples of reflection/feedback that is less than ideal. Use phrases that are negative or too general. For example:
  - It looks good.
  - I don’t know, I don’t like anything about it.

- It’s cool.
- Point out that even though some comments can be positive (“It looks good”), this kind of sharing isn’t very helpful and doesn’t give us any information about what you think.
- Do another round that models giving thoughtful, reflective comments. You can write some of these examples on the board for guidance.
  - I’m interested by how the artist ___.
  - ___ catches my attention because ___.
  - I appreciated how the artist ___.
  - I would like to see ___.
  - Next time the artist could try ___.

Explain the silent observation reflection activity ★
- Clearly explain how the process will work. Be sure campers understand that there will be two parts to the reflection, silent observation and then sharing with different partners.
- First, clocks will be set up all around the classroom and campers will walk around silently and observe the clocks, following along with the LI’s prompts.
- During this time, campers should make it a point to look at every single clock, and try to challenge themselves to find a different clock for each prompt.

Explain the verbal sharing reflection activity ★
- Next, campers will grab their clocks and move into a more social reflection.
- Explain that you will sing “Mingle, Mingle, Mingle!” to the tune of “Mambo, Mambo, Mambo.” As you sing this, campers will mingle around the room. Choose a word to shout to signal that campers should then partner up with a person they are close to.
- Once campers are partnered, you will ask questions that each partner will share about their clocks, or about each other’s clocks.
- Finally, everyone will come back together in the circle for a closing share.
- Review the Mindset Challenge ★ – Remind campers to keep being reflective by really taking their time to think deeply about their work and the work of others and by sharing thoughtfully.

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Do-With-Me: Reflection and Wrap Up (15 min)

What You’ll Need to Cover: Overview

SHARE
• Set up the clocks for reflection.
• Read the prompts and have campers move around and observe the clocks.
• Have campers return to their own clocks for the final silent observation.
• Have campers pick up their clocks and transition into “Mingle, Mingle, Mingle.”
• Have campers come into a circle for a final wrap up.

How Your TL Can Help
• Facilitate as partners share.

Guiding Campers

Set up the clocks for reflection
• Make sure clocks are easily visible and that campers can walk around.
• You can prop them up if that’s an option, e.g. turning chairs around and leaning the clocks against chair backs or against the wall. This depends on your classroom.

Read the prompts and have campers move around and observe the clocks
• Remind campers that this is a silent observation and reflection.
• You’re going to give them prompts like an “I Spy” game and they need to find a clock that fits your prompt.
• There is no right answer, as everyone’s interpretation can be different. There could be multiple clocks that they feel fit the description.
• Read the following “I Spy” prompts and give campers a few moments for each:
  • I spy a clock that makes me smile.
  • I spy a clock that reminds me of my own clock.
  • I spy a clock that is waaaay different than my clock.
  • I spy a clock that my brother/sister/mom/family member would like.
  • I spy a clock that gives me an idea I’d like to try if I kept working on my clock/made another clock.

Have campers return to their own clocks for the final silent observation
• Finally, have campers return to their own clocks. Say:
  • I spy one thing that was hard for me to do.
  • I spy one thing that was easy for me to do.
  • I spy one thing that I’d like to change.

Have campers pick up their clocks and transition into “Mingle, Mingle, Mingle”
• Have campers mingle to find a partner.
• Have partners answer the questions below. Campers should mingle and find a new partner for each question.
  • Tell your partner about your character! What is it called? How did you come up with it? Is there anything special about the character to share?
  • Find two similarities and two differences between your and your partner’s clocks.
  • Share one thing you’d like to change about your clock.
  • Share one thing you enjoy about your partner’s clock.
  • Share one thing you’d like to try/add to your clock. Share one thing you think your partner could add to his/her clock.

Have campers come into a circle for a final wrap up
• Have campers high-five their final partners and have everyone regroup.
• Allow campers time to share about how the silent observation and mingle sharing went. Ask:
  • How did it feel to think about your work?
  • How did it feel to think about someone else’s work?
  • Was anything surprising?
  • Why was this a good experience?
• Give time for campers to give a shout-out to any of their partners, or anyone in the class that they want to recognize for how they worked this week.
• Remind campers that they are part of a community, and communities grow and are strengthened by sharing with each other!