DIGITAL MEDIA

STEM works THINKit

Animation Studio Activity

Grades
K-12

Career Pathways
Screenplay Author
Videographer
Animator
Graphic Artist
Director

Academics
Math: Sequencing, Frequency (fps)
Language Arts: Storytelling

Professional Career Skills
Communication
Collaboration
Creativity
Problem Solving
Perseverance

Materials
Computer
Hue Animation Studio
Craft Materials (markers, clay etc.)

Team Goal

Level 1
Create a stop motion animation of one scene from a story. The set and main character should help the viewer identify the scene in the story.

Level 2
Design a storyboard and create a stop motion animation of one scene. The set should contribute to the scene's place and sequential frames should convey the character(s) actions to help the viewer identify the scene.

Level 3
Design a storyboard and create a stop motion animation of one scene or more from a story arc that was imagined by your team. Each set should contribute to the scene's overall tone/mood and smooth sequential frames should convey the character(s) intention.

STEM works
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Think like a Director & Animator with Hue Animation Studio

Stop Motion Animation

You will take a series of images, called frames, and play them in sequence. The movement of the models in each image is very small. When the frames are played together quickly, there is an illusion of motion. The process is similar To a flipbook.

Frames per Second

Also known as fps, this is the rate at which each image is played. The more frames, or images, you have recorded per second, the smoother the animation becomes! Most professional stop motion animated films are at 24fps to 30fps!

Frame

Each individual still picture you take is a frame. In hand-drawn animated movies, each frame was drawn by hand, but now computers help to speed up this process!

Animator

When you design the set and move the characters (models or puppets) for stop motion animation, you become an animator. An animator is a very creative career that involves a good eye for camera angle and patience for filming.

Timing & Pose-to-Pose Action

An animator figures out what poses will be needed for an action then uses timing to figure out how many frames will be needed to show that movement. Sometimes different objects have different timing. Heavier objects might move slower, needing more poses for an action and more frames.

Storyboard

A storyboard is a visual plan or representation of your story. When you plan out your story arc, the storyboard includes the characters, plot events and actions that make up the plot events. The storyboard should also represent the feelings or mood of the parts of the story.

Script

Screenwriters create the dialogue in a story. This dialogue is called a script. In stop motion animation, voice actors would read the script for the characters in the film.

Screenwriter

Instead of being an author for books, this career is an author for film. They write the script. Another name for this career is screenplay writer. Successful screen writers write scripts that make viewer feel emotions.

Set

You will need to design a background that represents the scene's setting. The set should add to the content or even feelings of a scene. The set includes the background or backdrop long with props.

Zoetrope

For history buffs: before movies there was the Zoetrope! It is an animation device that rotates a series of painted images in a circle. As the zoetrope spins quickly, viewers would watch the images move!

Claymation

Stop motion animation using clay models or characters is so popular that it has it's own name: Claymation! Can you think of any films you have seen that use the claymation technique?

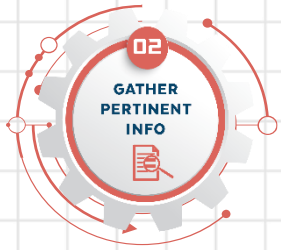
Staging

Staging is the way you present clear ideas. The setting, actions, and character expressions can help to communicate clear ideas. You want to stage a clear message for your audience. Have only one idea happen at a time. Prepare the action, have the action take place, and then terminate the action.

Engineering Design Process Directions:

Define the Problem

Choose a goal to tackle with your team!



Gather Pertinent Information

Plan your story using: Tips: Storyboard and Plot Events Cards.
Where does the story take place (setting)?
Who are your characters and what are their strengths and weaknesses?
What obstacles do characters encounter or create? How do they persevere through these obstacles? Do they succeed in the end?

Generate Multiple Solutions

From your story, consider each scene with your team.
How would your team bring each scene to life through a series of images?
What props and backdrop would need to be created?

Choose a Solution

Based on your team's ideas, choose one scene to animate.
Bring team ideas together into one solution. How many seconds will the scene last? How many frames per second (fps) will you use? How many frames (pictures) do you need to create to bring this scene to life?

Design a Culturally Responsive Solution

Work together and use Tips: Scene Animation.
How can your team share the work to reach goals and deadlines? Are your scene actions and images sequenced so they tell a story that makes sense? Do you need to adjust your fps?

Test and Optimize

As you film your story, play and replay your animation.
Does your animation makes sense to someone viewing it the first time?
Does it flow smoothly? Do you need more or less frames?
Use what you learned to improve your creative solution.

Share & Reflect

How did your team find solutions and practice perseverance?
What was one problem your team encountered and had to overcome?
Talk to your team: What went well? What could have gone better?

STEMworks TIPS

Plot Events: Obstacle & Perseverance Cards

Explore these plot events for your story! Good stories have characters that encounter and persevere through struggle. Explore obstacles that an antagonist (enemy/rival) might throw at your lead character. Brainstorm ways your protagonist (lead character) will persevere through each obstacle!

OBSTACLE

Natural Disasters

OBSTACLE

Unkind Words or Lack of Support

PERSEVERE WITH THIS SOLUTION

Make a Plan

PERSEVERE WITH THIS SOLUTION

Friendship & Making New Friends

PERSEVERE WITH THIS SOLUTION

Research & Knowledge

OBSTACLE

Fell Apart or Broke Down!

OBSTACLE

Not Enough Resources

PRESEVRE WITH THIS SOLUTION

Asking for Help

PRESEVRE WITH THIS SOLUTION

Practice & Trying Again

Plot Events: Obstacle & Perseverance Cards

Explore these plot events for your story! Good stories have characters that encounter and persevere through struggle. Explore obstacles that an antagonist (enemy/rival) might throw at your lead character. Brainstorm ways your protagonist (lead character) will persevere through each obstacle!

OBSTACLE

Running Late

OBSTACLE

A Transformation, Turning Mad or Crazy

PERSEVERE WITH THIS SOLUTION

Cleverness or Magical Power

OBSTACLE

Lost Sense – Sight, Sound, Smell, Taste, Touch

PERSEVERE WITH THIS SOLUTION

Support by Sacrificing Something

OBSTACLE

Something/Someone is Stolen, Lost or Missing

OBSTACLE

Rival Causes a Setback

PERSEVERE WITH THIS SOLUTION

Searching or Gathering Resources

OBSTACLE

Moral Dilemma or Bribery

Storyboard

STEMworks TIPS

Use this guide to develop ideas for each key story element. Describe each block with words or depict each element in a drawing. You will later create a model that visualizes part or all of your story using stop motion animation.

Title:

Screen Writer(s):

Story's Setting – Choose one to three locations!

Meet the Antagonist (Enemy / Rival)

Plot Event #1

The Antagonist causes first obstacle.

Plot Event #2

The Antagonist causes second obstacle.

Plot Event #3

The Antagonist causes final obstacle.

Meet the Protagonist (Lead Character)

The Protagonist tries to solve 1st obstacle by doing this…

but fails and learns…

The Protagonist tries to solve 2nd obstacle by doing this…

but fails and learns…

The Protagonist perseveres… and tries to solve final obstacle by doing this…

…and the Protagonist (hero) succeeds! The resolution or conclusion is….

Scene Animation

Did you know that movies are rarely filmed in sequence? Choose one part of a plot event from your story to animate: feature the antagonist (enemy/rival) causing an obstacle or the protagonist (lead character) trying solve an obstacle.

Ready to animate? Design your set and check the camera angle. Next, take photos of your character(s) completing actions. The sequential movement of characters and props is VERY small. The stop motion animation software will use your photos and play them back to create an illusion of movement! Photos in stop motion animation are called frames. More frames will make characters move smoothly. Plan on using 6-12 frames per second, this means 6-12 photos are needed for each second of movement!

(1) Scene Title: _____

(2) Screen Writer(s) and Director(s): _____

(3) Describe the Scene's Setting and Props::

_____

_____

(4) Scene Focus (Choose One):

Option A: *Plot Event #____*
The Antagonist (enemy/rival) causes this obstacle…

Option B: *Plot Event #____*
The Protagonist (lead character) tries to solve obstacle by doing this…

(5) Scene's Character(s):

Name(s):

What are they like? (Strengths and Weaknesses):

Describe their appearance:

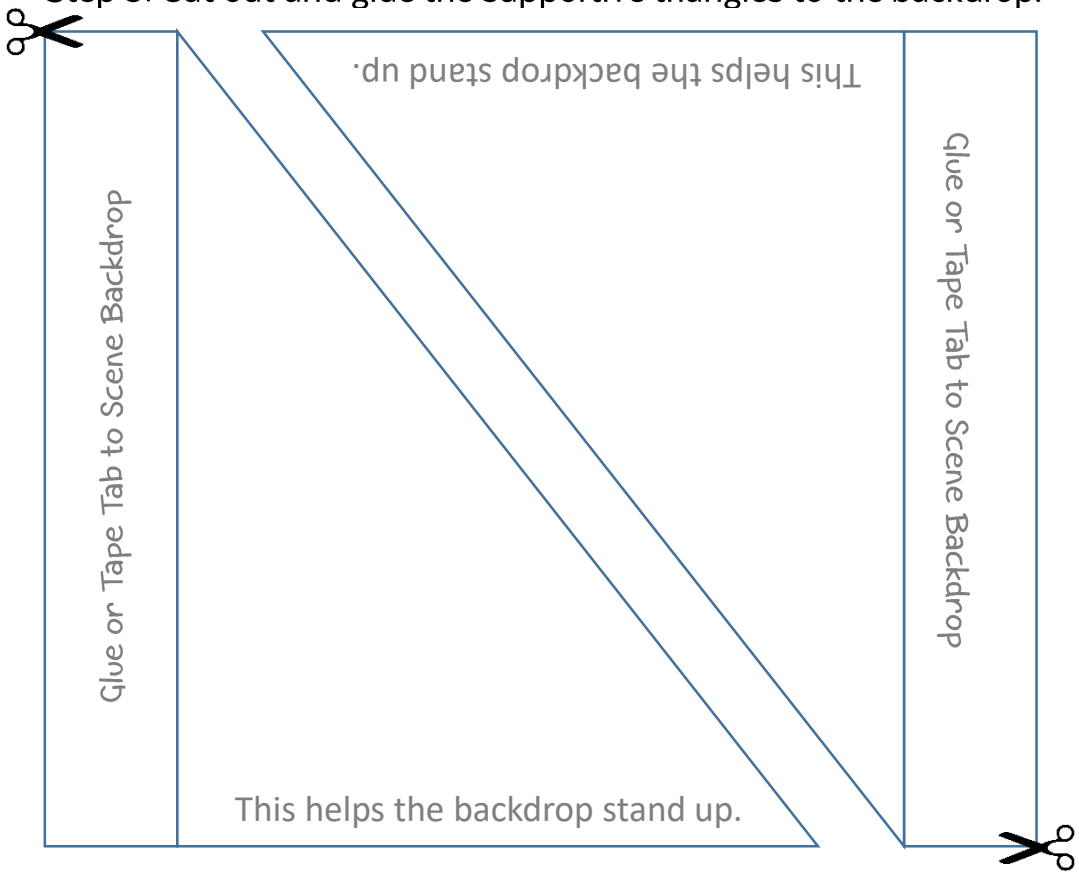
(6) Character(s) Actions during this Scene:

First Action:	Second Action:	Final Action:
This happens first:	Next, this happens:	This happens last:
This action takes ____ seconds at ____ fps (frames per second). We need ____ photos for 1st action.	This action takes ____ seconds at ____ fps (frames per second). We need ____ photos for 2nd action.	This action takes ____ seconds at ____ fps (frames per second). We need ____ photos for 3rd action.

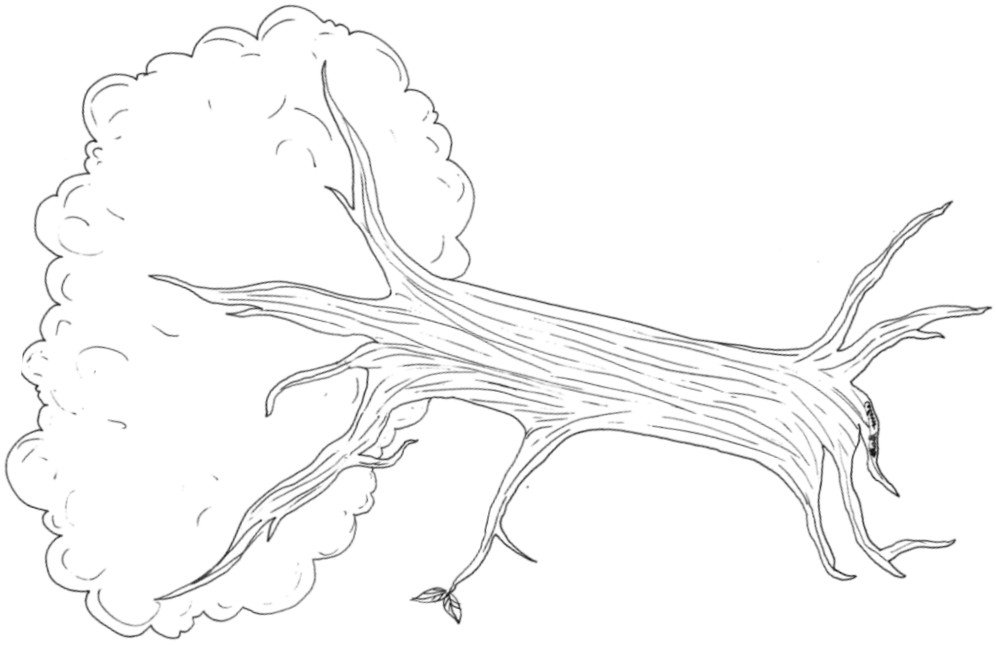
Staging the Scene's Setting, Props and Characters

Your scene might take place by the ocean, forest, town or even inside a room. Use this toolkit or clay to create an animation! Or try Autodesk Sketchbook, a digital graphic design tool for artists!

Backdrop: Step 1: Take paper and fold it in half.
Step 2: Draw the scene's background on the top and the ground on the bottom.
Step 3: Cut out and glue the supportive triangles to the backdrop.



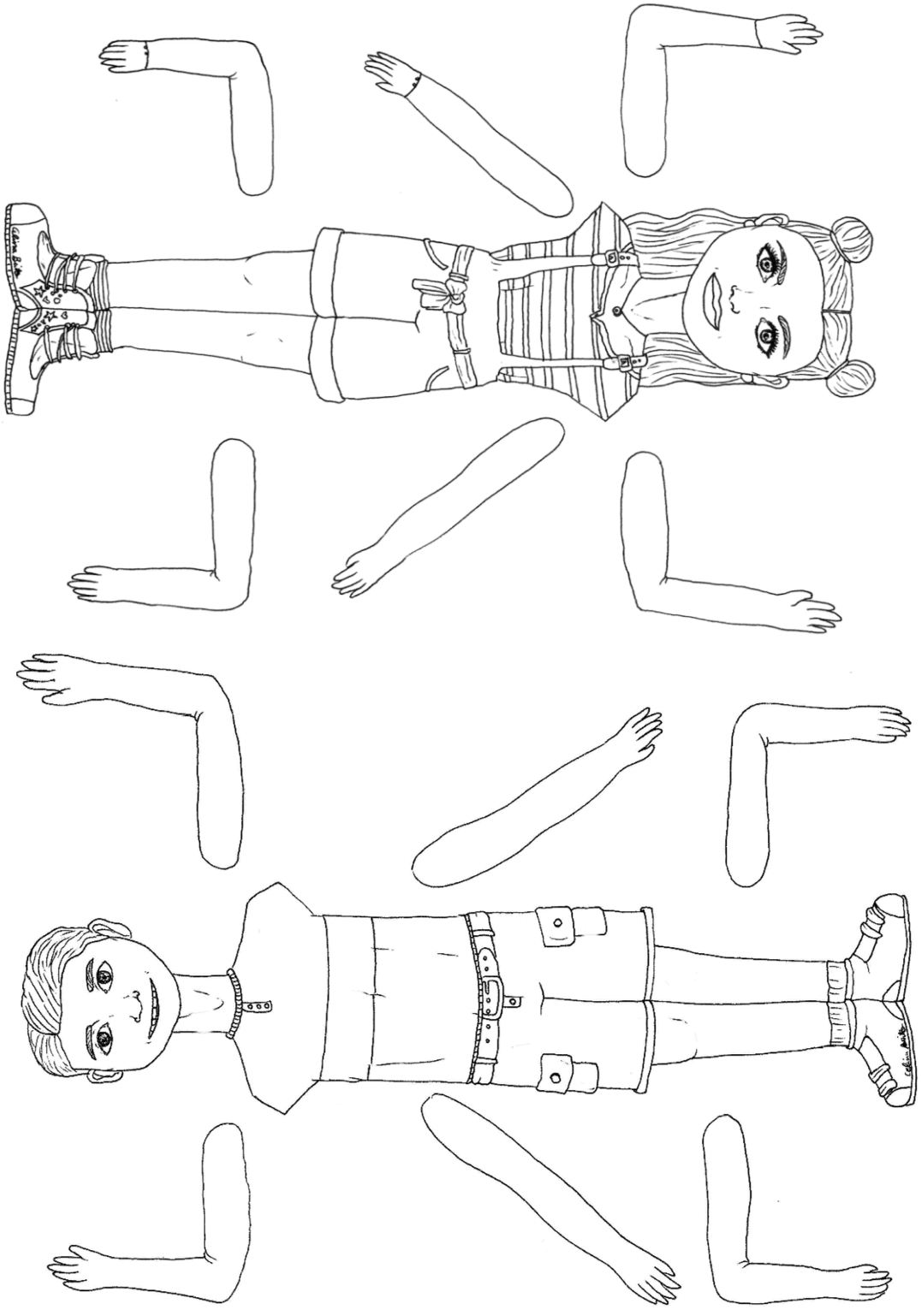
Props: Step 1: Draw and cut, design and print paper props. You can use the trees below. Or try designing props with clay for Claymation!
Step 2: Make a stand. Stack Legos and tape then to paper make a good stand.



Artwork created by Maui Middle School Student!

Staging Scene's Setting, Props & Characters

Characters: Step 1: For paper characters, draw and cut out the characters below or design your own! Or mold characters with clay to create a Claymation!
Step 2: Choose your character's arm positions.
Step 3: Stop motion animation is a slow process. You will need to lightly tape the arms and move them slightly between frames.



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