

JUNIOR: ENTERTAINMENT TECHNOLOGY

Hey Girl Scout! There's an old saying that all work and no play makes life pretty dull. But if you learn the ins and outs of entertainment technology, you can end up with work that's all about play! When you've earned this badge, you'll know the science behind the world of entertainment.

Step 1: Animate your own artwork

1. Whether you do it digitally or the old-fashioned, hand-drawn way, the secret of animating art is getting multiple frames in a second. You are going to be either creating our own flip books or creating a comic book.
2. To make a flip book, you will need pieces of paper that are all the same size and that can easily be flipped through with your finger. Starting on the first page, draw your image or beginning of your story. On each additional page, alter the images slightly so that when you flip through all the pages quickly, it looks like they are moving. After to finish your drawings, secure all the pages together with a stapler, binder clip, etc.
3. If you would like to make a comic book, lay out squares or other shapes on the pages. Then fill in the shapes with drawings and text.

Supplies:

1. Blank paper
2. Markers/colored pencils
3. Staples, binder clip, etc. for flip books

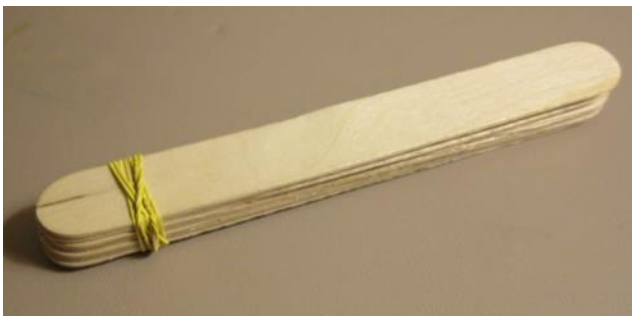
Step 2: Dig into video game development

1. Some software developers get to play games all day. Think you might like that kind of career? Let's talk about what it would take to be a video game developer.
2. Talk about the following questions with someone in your home: Do you like video games? What games do you like to play? What do you think a person has to do to create a video game? What college degrees and experiences do you think a person needs to become a video game creator? For that last question, you might need to do some research on the internet.

Supplies: None

Step 3: Try the science of amusement park rides

1. The science of physics makes most theme park action possible, from the flume to the roller coaster to the merry-go-round. We are going to be making catapults and will launch objects to see which object goes the farthest.
2. First, stack 5 popsicle sticks or craft sticks together, and secure both ends with rubber bands.



3. Next, stack 2 craft sticks together and wrap a rubber band around the very end. Separate the 2 craft sticks. Place the stack of 5 craft sticks between the 2 craft sticks. Wrap a rubber band around all of the craft sticks to hold the catapult together.



4. Using another rubber band, attach a plastic spoon to the top popsicle stick. Push down on the top of the spoon to release an object!



Supplies:

1. Rubber bands
2. Popsicle sticks or craft sticks
3. Plastic spoons
4. Pom poms and/or other small objects to use to test the catapult

Step 4: Create your own special effects

1. Chances are that special effects play a big role in many of your favorite movies. Sometimes the effects are quite obvious, but lots of times they're hidden. Think about your favorite movie or television show. Can you think of any special effects that are used? Maybe in the scenery, with an animal or creature, or with make up?

2. There are a few ways you can complete this step. You can use craft supplies to create a 3 dimensional scene, you can use make up to make your face or a body part look different, or you can use special effects on a phone or computer to make an interesting scene.

Supplies:

1. Craft supplies for a 3 dimensional scene, or make up, or a phone or computer

Step 5: Surf a sound wave

1. Sound technology has changed enormously in the past few decades, and the changes, especially the invention of compressed MP3 files, have made playing, recording, and sharing music easier and more accessible. But no matter how music is played, it all comes from the science of sound waves. We are going to do a few experiments that will show you more about sound waves.
2. We will first be making paper cup and string phones to see if they really work.
3. Start by cutting a long piece of string of at least 25 feet.
4. Poke a small hole at the bottom of each cup. Using each end of the string, thread it through the bottoms of the cups, tying a large knot so that the string does not fall out of the cup. If you make the holes too large, use a washer or paper clip to hold the string in place so that it does not pull out of the cup.
5. Move into position far away from the other person so that the string is tight. Be sure that the string does not touch any other object and that it remains suspended in air as you complete the experiment.
6. Taking turns, talk into the cup while the other person listens by putting the cup to their ear. Repeat what you hear the other person say to see if it worked!
7. Here is what is happening in this experiment: sound waves created by talking through the cup travel through the line to the other end, converting back to sound on the opposite side!
8. Next, we will be doing an experiment to see how sound waves move things.
9. Wrap a sheet of plastic wrap over the mixing bowl so that it is tight and secure with the large rubber band. Be sure that the plastic wrap is tight and does not sag.
10. Place a few of the sugar crystals on the top of the plastic wrap, placing them in the middle of the wrap.
11. Get close to the sugar crystal and say something loudly! What happens to the crystals? Do they move?
12. Experiment with louder and softer words or sentences to watch the sugar crystals react to the sound vibrations!
13. While you might think it's your breath making the crystals jump and move, it's actually the sound vibrations. Try different sounds besides ordinary speech, like music, and see how the crystals come to life!

Supplies:

1. Paper cups
2. Fishing line
3. Large bowls
4. Large rubber bands
5. Plastic wrap
6. Sugar crystals

