CURIOSITY AT HOME

STOP EDITS

Since movies were first invented, film makers have used tricks and technology to show on film things previously imagined. They used an understanding of how movie technology works and of how we perceive the world with our eyes to show us fantastic illusions. In this activity, you will make your own movie scene with a simple special effect known as a "substitution splice" or a "stop edit."

MATERIALS

· Phone or tablet with a built-in camera that can record video and can "pause" while recording, or a video camera. *(Depending on your phone/tablet model, you may need to use a 3rd party app from the app store; there are many free options.)*

· Something to securely hold the phone or camera in place so that it won't move when you touch it.

· A "set." This could be a room or an outdoor space where there is little or no movement in the background, or a drawing.

· An object or a friend to "star" in your production.

PROCEDURE

· You are going to shoot a very simple "one-shot" movie on video. In the video, you are going to make someone or something "vanish" and reappear. Activate your phone's camera or turn on your video camera and set it up so that it frames your scene the way you want and won't move when you touch it.

· Place your subject (either an object or a friend) in the set.

· Begin recording video by pressing or tapping the "**record**" button.

· After you've recorded a few seconds, carefully tap the "**pause**" button. (**Don't** push "stop." You want the finished video to be one file.)

· Remove the subject from the scene.

· Tap the appropriate button on your camera/phone to resume recording.

· Record a few seconds of the scene without the subject.

· Tap "**pause**" again.

· Put the subject back in the scene. It can be in a different place in your frame, but remember not to move the camera!

· Resume recording for a few more seconds, then press the "**stop**" button to end the recording.

Now, when you play back your video, it should look like your subject suddenly vanishes for a moment and then reappears!

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DID YOU KNOW?

This effect is known as a "substitution splice" or "stop edit" and is one of the first special effects movie-makers figured out how to do over 100 years ago! The French illusionist George Méliès used variations on this technique in many of his silent films from the 1890s and early 1900s.

Movies and videos are made up of many still images (known as "frames") that are shown one-at-a-time very rapidly. We perceive this rapid sequence of images as smooth motion. This kind of perception is known as "persistence of vision." Old silent movies presented 18 of these frames per second or fps. Motion tended to look choppy at this speed, so modern motion pictures and videos are recorded and presented at 24 fps, 30 fps, 60 fps, or more. The "stop edit" trick works because we don't see the stopping or starting of the recording. We just see the whole scene continuously, so it looks like an object instantly vanishes or appears.

TRY THIS

Try variations on this basic effect with the following challenges:

· Can you have a person disappear when they snap their fingers?

· Can you use the same technique to make an object instantly turn into something else?

· By having your person or object move small amounts each time you pause, make a video that shows a person moving around without moving their feet, or make an inanimate object move around all by itself.

Use your imagination and have fun!

K–2 GRADE EXPLORATION

Here are some questions you can explore together.

· Why do you think it is so important to keep the camera from moving when you touch it to pause or un-pause?

· What movies or television shows have you seen that might have used this special effect?

· What might be different if your subject is an animal, like a dog, cat or bird?

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3 – 5 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

· How do you think this effect works?

· Why do you think it is so important to keep the camera from moving when you touch it to pause or un-pause?

· Why is it important to be able to pause your recording instead of stopping it?

· Have you seen any movies that might have used this special effect?

· Find George Méliès films on the internet: archive.org/details/IllusionsFantasmagoriques

  – See if you can spot the substitution splices.

  – What other special effects do you see? Can you figure out how they were done?

· How do you think computer-generated imagery (CGI) has changed special effects in movies?

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6 – 8 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

· How do you think this effect works?

· Why do you think it is so important to keep the camera from moving when you touch it to pause or un-pause?

· What movies have you seen that might have used this special effect?

· Find and watch a George Méliès film on the internet: archive.org/details/IllusionsFantasmagoriques

  – See if you can spot the substitution splices.

  – What other special effects do you see? Can you figure out how they were done?

· When professional movie-makers do a substitution splice, do you think they pressed a "pause" button on the camera, or do you think there might be another way to accomplish the same thing? If so, how?

· How do you think computer-generated imagery (CGI) has changed special effects in movies?

· How can we know when we are seeing special effects in movies? Can you think of an example of when it would be important to know if something is a special effect or not?