

STOP MOTION ANIMATION

Duration: 5-30 minutes

Institution: Science Museum of Minnesota

Skill level/Age Level: All Ages

Group size: 1-3 participants

INTRODUCTION

Stop Motion Animation is a fun activity that allows visitors to bring dinosaurs to life through stop motion animation. We created two panoramic illustrated backdrops of environments with flora and fauna for staging the animations. The two sets come with some DIY vegetation props and a set of detailed plastic dinosaur models. Visitors can choose to use an available smartphone with an animation app on the phone or their smart phone (after they install the free animation app) to record their animations.

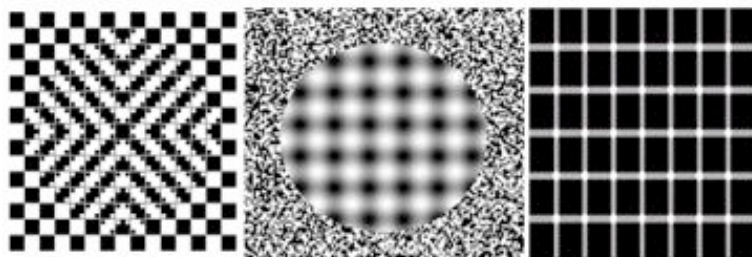
KEY CONCEPTS AND/OR SUBJECT AREA

Stop Motion is an animation technique to bring inanimate objects to life. It happens when you see multiple frames within a short amount of time. With each frame is a small change to the subject in motion. This makes the many frames seem to show fluid movement. A physical version of stop motion animation is the “flip book” where you have slight changes in the images for each page and so when you flip them through very quickly, it appears as the drawing comes to life.



Persistence of Vision explains how slow our eyes sense change when we view fast moving objects. This allows a sequence of images appear to be moving when we see one then another then another. The human perception is seen through **Phi phenomenon**, which is the optical illusion of motion between separate still

object. This also helps explain **animation**. Animation is the illusion of motion of objects by a rapid display of still images that are very similar.



MATERIALS AND TOOLS

Essential Materials:

- Stage for animation—this can be as simple as cardboard and paper or a well crafted panorama stage with images of flora and fauna as a setting for the animation.
- Props & Characters (plastic dinosaurs, sections of plastic grass, colored sheets of acetate for water and DIY or purchased scale trees, etc.)
- Tripods to hold smart phone in place
- AC adaptor plug for plugging in the phone
- Clapboard for titling videos
- Tabletop lamp for illuminating the scene.

Optional Materials:

For participants to make more scenic materials:

- Assorted colored construction paper
- Paper towel tubes
- Colored contact paper
- Masking tape
- Scissors

SET UP



- Set out dinorama sets on the table.
- Set up extension cord so you can plug in the lamp and if needed later a phone charger
- Set the Props on the set or on the side where visitors can see them
- Have the phone for recording sitting in the phone stand so visitors see how it works

- If having backdrop materials available—set some of these out along with scissors and tape—not a lot as we do not see a lot of use of these materials

Note: the table setup **should not be** super neat and tidy, a little messiness and a lot of materials on the table will be more inviting and interesting to guests who come and play.

HOW TO OR STEP-BY-STEP

We are using the Vine Smart Phone App for Android or iPhone (there are many types of animation software, we use Vine since its free, works on a range of phones types and because the animations end up being relatively short its great for introducing stop-motion very quickly)

1. Vine is a very simple app that opens your camera and lets you to take a photo with a tap on the screen. After multiple photos (or “Frames”), it’ll let you know how much you have recorded and will play it back to you as a sequence of motion. This animation is then uploaded to share online.



2. To get started with vine you’ll use one of the cell phones, and the phone stand (along with the diorama background with props, plastic dinosaurs and a clap-board to hold up in front of the camera to identify your animation.)



3. You’ll want to place the cell phone in the stand. You can do this by simply sliding the cell phone into the slot. You can then lean the phone back and forward to adjust for the angle of the scene you want.



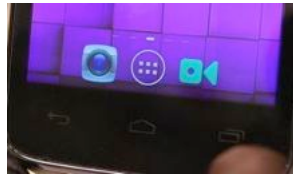
4. If the phone is off or asleep push the button on top to turn it on or wake it up. You may need to hold this button a moment if the phone is completely off.



5. Once the phone is on, it will be in the locked screen. Just swipe the lock icon with your finger over to the side to unlock it.



6. When you've unlocked the phone you should see a couple icons on the bottom of the screen. Click the green Vine camera icon.



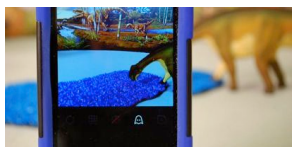
7. When the Vine app loads it turns on the camera so you should be able to see the scene you are going to record.



8. It's important to be able to find your video online so we will use a clapboard. Just write your first name and last initial on the board. You can even title it



9. Below the image will be a row of faint icons. Click the one that looks like a drawing of a ghost. This turns on "onion-skinning" a view that will show a faint ghost image of the previous frame so you can see how much you have moved your dinos in the frame. This gives the animator very fine control on the animation, and helps with registration if you bump your scene.



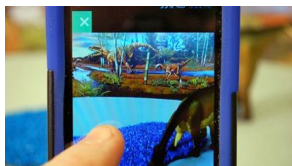
10. Set up your scene to capture.



11. To capture a frame, just tap the screen. Hold up the clap-board and tap a few times to put your name and title on the beginning of your video. On the bar above the scene on the screen you'll see a green bar begin to move across the screen for the captured frames.



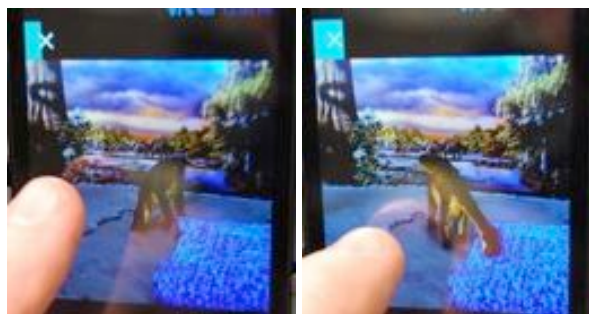
12. Then you can start tapping to animate your scene...set your character in place then tap...



13. Move your characters again, and tap again.



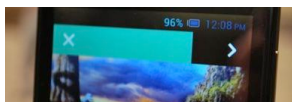
14. The smaller the moves the smoother the animation.



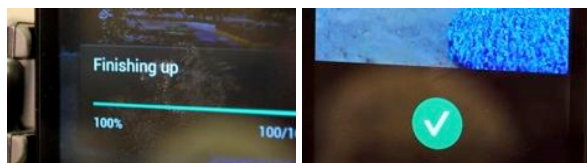
15. Use the ghost image to help make sure your animation moves are consistent.



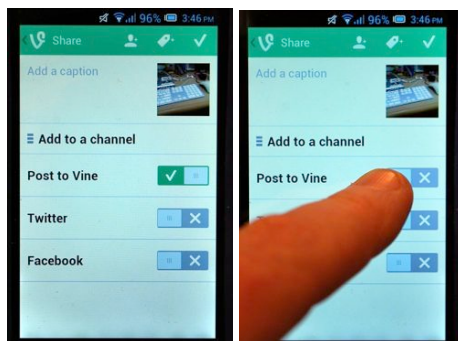
16. When you are finished capturing frames click the white arrow at the top of the screen.



17. This will turn your frames into a movie. Click the check button to get your movie ready to save your animation and upload. At this point your animation is saved on the phone.



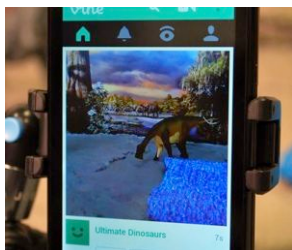
18. On the next screen you will see that the “Post to Vine” is checked—we do **not** want to post to Vine, we will upload the videos to your own Science Museum of Minnesota gallery; so to uncheck, just tap or slide the slider for Vine and an “X” should be showing.



19. Then you will tap the little check on top to **save the animation file on the phone**.



20. We will post the videos to the website on a **weekly basis**. This address and the URL to the Vine app will be on the slips of paper in the materials. Currently there is no way to show the visitor their video once it has been saved to the phone, just let them know it will be available within a week of their visit.



FACILITATION TIPS

Visitors will be excited to begin creating as they come up to the table. The best method with this activity is to do a short 15 second “how to” session using the smartphone app and props. Encourage parents and adults to use their own smart phones if they know how to download the Vine app.

FACILITATION PROMPTS AND QUESTIONS

- How has making a stop-motion animation changed the way you view animation?
- How are your animations different than the animations in movie theaters?
- Have you seen the original King Kong film or other earl fantasy films? What films have you seen with this type of animation?
- How would your movie change if there were bigger changes between each still?

MORE INFORMATION AND RESOURCES

Wikipedia article on stop-motion:

http://en.wikipedia.org/wiki/Stop_motion

Animation and the persistence of vision

<http://tomtyldesleyanmiation1.blogspot.com/2011/06/animation-persistence-of-vision.html>

An introduction to stop-motion on a software site

http://www.dragonframe.com/intro_to_stop_motion.php

Vine—free app for iPhone and Android smart phones

<https://vine.co/>

SAM animation—free demo software developed at Tufts University

<http://icreatetoeducate.com/try-demo/>

KEYWORDS

- Animation
- Stop-motion
- Illusion
- Persistence of vision
- Diorama
- Dinorama
- Smart phone animation
- Phi phenomenon