

Frames Project Ideas—Secondary Science

Creating illustrated animations, movies, and digital stories engages students in the curriculum, encourages problem solving, promotes creativity, and helps students develop 21st-century skills. Students can use Frames to create animated news broadcasts, digital stories, video biographies, and more to explore the science curriculum.

Weather and Climate

Wind

Imagine that you are a hot-air balloonist. You want to fly your balloon across the continental United States. To achieve the fastest time, would it make more sense to fly east-to-west or west-to-east? **Be sure to explain how the prevailing winds influenced your decision as an outdoor activity group is looking to publish your findings in a new guidebook.**

Weather

The Weather Channel is creating a documentary on hurricanes. You are a hurricane hunter - a scientist who flies into a hurricane to collect data. **Create a travelogue on the experiences you have about what it would feel like as you fly through the hurricane's eyewall into its eye.**

Climate

A group of scientists are looking to find answers about the cause of the last ice age. You have recently come across a time machine that will allow the group to travel back in time to the last ice age. **Create an informational video on the type of equipment your group will need to bring to find out more about the causes as well as what the climate will be like.**

Earth

Plate Tectonics

Hollywood is looking for a more traditional approach to the movie *Journey to the Center of Earth*. You are to create a travel video on your journey to the center of Earth describing the layers of Earth through which you travel. **Be sure to explain how temperature and pressure change beneath the surface.**

Earthquakes

You are an inventor who has created a simple device that can detect an earthquake. To protect your rights to the invention, you apply for a patent. For the patent application they are asking for a simulation video describing your device and how it will indicate the direction and strength of an earthquake. **Be sure to include an illustration labeling your device.**

Volcanoes

As a travel agent, you are planning a Pacific Ocean cruise that will visit volcanoes in the Ring of Fire and Hawaii. **Create a video brochure advertising the types of volcanoes the group will see and explain why the volcanoes formed where they did.**

Chemical Interactions

Chemical Bonding

Pretend that you are the size of an atom, and you are observing a reaction between a potassium atom and a fluorine atom. **Create a visual account of an ionic bond as the atoms react. Tell what happens to the valence electrons on each atom and how each atom is changed by losing or gaining electrons.**

Chemical Reactions

Cartoon Network has hired you to create a series of animations on chemistry. Your first cartoon should help young children understand the concept of "activation energy." **Be sure to use examples that young children can relate to, such as the burning of wood or gas.**

Carbon Chemistry

As a chemist you invent a polymer that can be a substitute for a natural material such as wood, cotton, or leather. In order to market your invention you must create a commercial for your polymer, explaining why you think it is a good replacement for the natural material.

Astronomy

Earth, Moon, and Sun

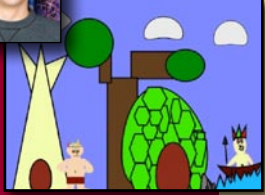
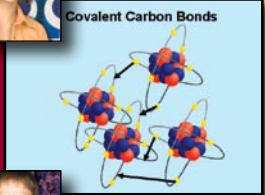
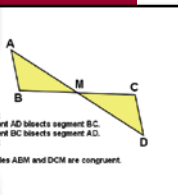
It has been many years since we landed on the moon. Since then the moon has lost popularity amongst space travel and knowledge. *NASA* has recently hired you to create a public service announcement on the origin of the moon and how it formed.

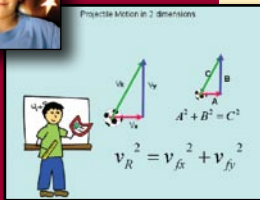
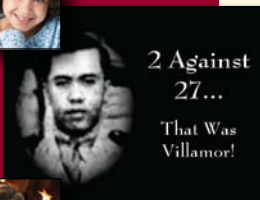
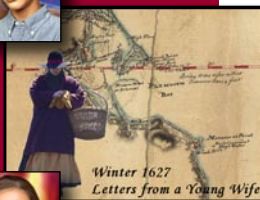
Exploring Space

Imagine that you are a scientist planning the first human expedition to Mars. The government will not fund the project until they have ample information. You will need to create a video for them about some of the major challenges that such a mission would face and provide possible solutions. **Think about the physical stresses of space travel and how the crew's basic needs will be met.**

Solar System

You have been hired by an online intergalactic travel group to create an advertisement for the inner planets other than Earth. **Design a video for your selected planet, including basic facts and descriptions of places of interest. Why would individuals choose to visit this planet over others?**





Structure and Function in Living Systems

Viruses, Bacteria, Protists, & Fungi

You are a detective for the Mold Prevention Agency and have been assigned to create a "Wanted" commercial for a mold that has been ruining food in kitchens. Present the mold as a "criminal of the kitchen". Include detailed descriptions of the mold's physical characteristics, what it needs to grow, how it grows, and any other details that will help families identify this mold. Propose ways to prevent new molds from growing in kitchens.

Invertebrates

As a television reporter, you are covering a story about a giant squid that has washed up on the local beach. When you arrive there are scientist swarming the creature. Create a news segment describing the discovery, as well as how scientists classified the animal as a squid.

Vertebrates

As an ornithologist for the San Diego Zoo you have decided to create an informational video for the kiosk at the large bird exhibit. This video should inform visitors about adaptations that enable a large bird to fly.

Cells

Combining music and animation can help people remember ideas and information. In the tradition of *School House Rock*, write a song about the structure and function of plant or animal cells. Then, create an animated short segment to air between children's programming.

Structure and Function in the Human Body

Bones and Muscles

The local cable network is looking to create a series of animations on personal health. They feel it is important to educate the community on the functions of bones and muscles for proper health. Create an animation comparing the characteristics of cartilage with the characteristics of bones. Be sure to explain the advantages of both types of materials.

Nervous System

As a brain researcher it is important to understand the relationship of the right and left halves of the brain. You decide to create a public service announcement for individuals to better understand how their brain functions. Compare the functions of the left and right halves of the cerebrum. Discuss what kinds of mental activities each half controls as well as which side of the body it controls.

Genetics

Imagine you just found out that you have an identical twin who was raised in another country. Create a video for them of what you think they would be like. Be sure to include information about what you think they look like, their interests, and unique characteristics they may have. Does environment play a role in any of these?

Resources That Can Help



www.thecreativeeducator.com

Creative Educator magazine features articles on project-based learning, stories from educators, high-level lesson ideas, software tips, and more.



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