CREATE A STEM VIDEO

United Way of Northern Nevada and the Sierra

Keeping children safe and learning at home amidst the pandemic has been a priority for families everywhere. Create a video themed around STEM to inspire families to create their own STEM fun at home with easy, every day objects.

Why Create a STEM Video?

STEM Videos focus on SCIENCE, MATH, TECHNOLOGY, and ENGINEERING. These topics are important for kids to explore because it exposes them to new ideas and opportunities. The pandemic is encouraging everyone to get creative and keep the fun and learning alive at home. Help UWNNS encourage STEM fun for local families!

Get Started!

Making a STEM video can be fun for both parties! You can either choose from our list of recommended experiments included in this document or create your own easy-to-follow experiment. Remember, these experiments will be conducted at home so try and use items that can be found in a household.

To keep children engaged you can: use an energetic tone, add wacky sound effects, or maybe add some color to your experiment. Get creative! When filming your video, explain any scientific processes that are happening. Don't forget to introduce yourself at the start of the video and feel free to mention the company you are representing if this is a company volunteer opportunity.

Finish your video by thanking your viewers for watching and be sure to end with a smile! UWNNS is excited to share your videos with local families!

Sharing your STEM Video with UWNNS

Share your video file with UWNNS via email at volunteers@uwnns.org – most email providers will suggest that you email the link through a shareable link, follow instructions to do so, or email us at the same email above with any issues!

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RAINBOW SKITTLES

A LESSON IN DISOLVING

EXPLANATION

This Rainbow Skittles experiment is a simple chemistry experiment that will allow students to observe the diffusion of molecules. Many of the candies we eat contain artificial dyes. When these dyes are placed in water, the molecules that make up the dye will break away and spread out in the water. The process where molecules spread out like this is called diffusion. When placed on a shallow plate of warm water, the dye from the Skittles quickly dissolves into the water, making a colorful rainbow. For this experiment you'll need Skittles, a plate, and warm water.

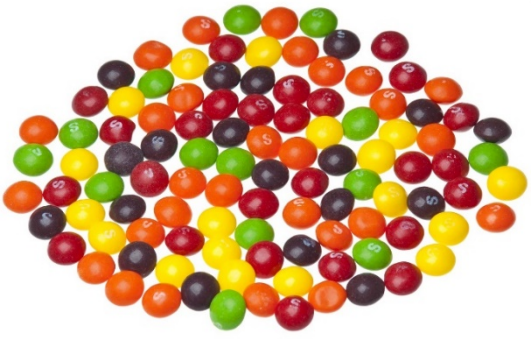
INSTRUCTIONS

1) Start by telling the students they will need Skittles, a plate, and warm water to conduct the experiment with you.

2) Begin the experiment by telling the students to arrange their Skittles around the edge of the plate. Demonstrate this for them.

3) Once the rim of the plate is full, ask the students to watch closely. Explain you are going to make a "rainbow" with the Skittles. Pour warm water in the center of the plate, filling it until the candies are at least halfway covered with water.

4) Watch as a "rainbow" flows out of the Skittles! Tell the students that it's their turn to try!



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SINK OR FLOAT

A LESSON IN BUOYANCY AND DENSITY

EXPLANATION

This sink or float experiment is a simple physics experiment that will encourage students to make predictions and observations about buoyancy and density. Through their observations, students will learn about buoyant objects (objects that float) and dense objects (objects that sink). For this experiment you'll need waterproof household items and a container to do the experiment in (plastic tub, pot, bucket).

INSTRUCTIONS

1) Start by telling the students they will need collect items to test. Next, tell them to fill a tub or bucket with lukewarm water. Encourage them to choose an easy clean-up experiment site (bathroom, kitchen, etc.).

2) Before adding the objects to the water, ask the students to predict which objects they think will sink and which will float.

3) Begin the experiment by dropping the objects you've chosen, one by one, into the water. Ask the students to pay close attention while you drop each item. Ask if their predictions were right.

4) Before explaining why items sink or float, ask the students why they think an object sinks or floats. They may guess it's because of size or weight or construction.

5) Explain that items sink, or float based on their density. An object will sink if it is denser than the liquid it is placed in. Tell the students that it's their turn to try!

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THE MARSHMALLOW CHALLENGE

A LESSON IN ENGINEERING

CHALLENGE

The goal of the Marshmallow Challenge is to build the tallest free-standing structure in just 18 minutes using 20 sticks of spaghetti, one yard of tape, one yard of string, and one large marshmallow. The marshmallow must be on top and cannot be deformed to hold it in place. The structure must stand firmly on its own; it cannot be propped up, held, or suspended from the ceiling.

LEARNING OBJECTIVES

- Understand that some shapes are stronger than others
- Understand that even weak materials can be made stronger with good design techniques
- Understand the importance of failure in science and engineering

INSTRUCTIONS

1) Explain the Marshmallow Challenge and discuss the learning objectives.

2) The building materials needed for this experiment include: 20 sticks of spaghetti, one yard of tape, one yard of string, and one large marshmallow. Students will also need a measuring tape and timer.

3) Tell the students to pause the video while they build their tower and to push play when their time is up. Let them know that you will show them your tower once they have built their own.

4) Display your tower to the students. Highlight the shapes you used to construct your tower. Which shapes are stronger? Note that even weak materials can be made stronger with good design techniques.

5) Measure your tower and ask the students to compare their tower heights. Ask them if they ran into any surprises while building their own tower. Discuss some of your construction challenges. Note the importance of failure in science and engineering.