STEM Challenges!

Through the NHA communication there will be a challenge linked to the science topic you're currently doing. These are NOT, compulsory but can be completed if you would like to. This STEM challenge will run for this term and you can share your challenges **on Twitter, email to you class teacher or post it on your teams page!**

Please share your completed STEM challenges on twitter as well as on your STEM class page on teams, so your classmates and teachers can see the fantastic challenges you are taking on! Class Dojos will be awarded, but remember to tag your class teachers on teams, so they don't miss it!

EYFS: This term through your Knowledge and Understanding of the world you would have been learning about the changing seasons.

Challenge: Take it Outside: Autumn

You will need:

- A collection of autumn leaves (remember to collect only those that have fallen to the ground)
- Autumn Leaf Identification Posters
- Little Acorns eBook

Little Steps

1. Explore your outside area. Look for signs of the changing seasons. What do you notice?

2. Choose a tree to focus on. Are its leaves changing colour? Are some leaves beginning to fall? If the answer is yes, it must be a deciduous tree. Trees that stay green throughout the year are known as evergreen. Can you find an evergreen tree? Compare the leaves on a deciduous and an evergreen tree. How are they different?

3. Make a collection of fallen autumn leaves. Gather as many as you can! Remember, only collect those that have fallen.

4. Next, sort your collection. The way you sort them can be up to you. Good ways to sort include those from the same tree, size, colour or shape.

5. Can you identify the tree the leaf came from? Perhaps you have an oak tree on your school grounds. Did you spot any acorns? You could try planting an acorn and helping it to grow into a mighty oak, just like in the Twinkl Originals story, 'Little Acorns'.

6. Ask questions about the way the leaves have been sorted – which leaf was most/ least common? Which tree did it come from? How many different colours did you collect? Which colour was most frequent?

Helping Hand Provide magnifying glasses to look really close at the leaf features. You could provide categories for sorting, such as colour. Encourage lots of discussion as the children categorise their collection.

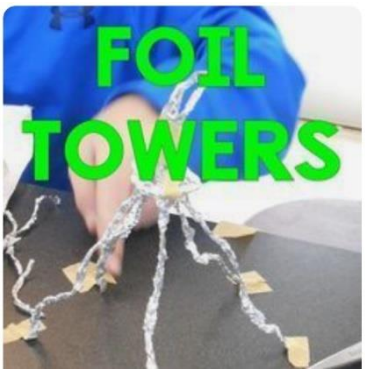
Little Acorns book- https://www.youtube.com/watch?v=CbeGN_B-FGQ

Y1: This term your Science topic is: Senses/ seasons

Challenge: Explore the Outside

1. Explore your outside areas. Look for signs of the changing seasons- what do you notice?
2. Look up into the branches of the trees. What can you see? Can you find nay seeds, nuts or fruit on branches?
3. Investigate your treasures. Look at them and sort them, feel them, smell then- do they make a noise?
4. Investigate further- Use playdough or salt dough and press autumn treasures (what you find) into them. Can you roll it? Press it? Stamp it? You might even like to make a sculpture or prints with it.

Y2: This term your science topic is: Everyday Materials

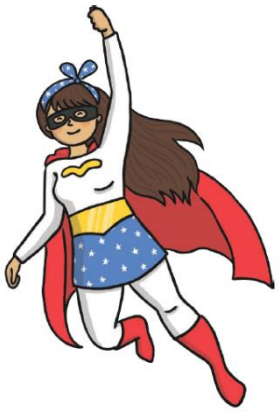


Challenge: Tallest Foil Tower

Using only foil paper and sticky tape, can you create the tallest tower? Why not make it a little competition with someone in your family, friend or neighbour.

Y3: This term your science topic is: Rocks and Soils

Challenge: Edible Rock Cycle!



You will need :

- 10 oz bag miniature marshmallows
- 3 tablespoons butter, softened
- 1 cup of chocolate chips
- 1 cup M&M's minis

HOW TO MAKE A SEDIMENTARY ROCK CYCLE:

Let's get learning with edible science the kids love. Sedimentary rocks are usually layered with different bits represented by the ingredients below. The layers are pressed together but not too tightly.

The layers of sand, mud, and rock or pebbles are compressed over a long period of time. However, our edible sedimentary rock doesn't take years to form! Good thing.

STEP 1. Grease an 8×8" baking pan

STEP 2. In a large microwave-safe bowl, heat the marshmallows and butter for 1-2 minutes and stir.

STEP 3. Mix in the Rice Krispies cereal half at a time.

STEP 4. Scoop half your Rice Krispies mixture into the bottom of your greased baking pan and press firmly.

STEP 5. Spread out the chocolate chips and add another layer of Rice Krispies.

STEP 6. Lightly press the Rice Krispies mixture onto the chocolate chips.

STEP 7. Spread the M&M mini's onto the top layer of Rice Krispies and carefully press them down to stick onto the layer of Rice Krispies.

STEP 8. Let sit for an hour and slice into bars.

Y4: This term your science topic is: Electricity

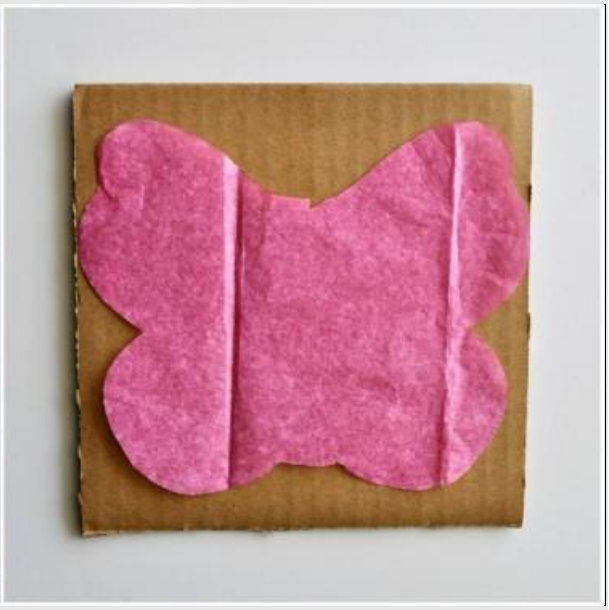
Challenge: Static electricity

To demonstrate the effects of static electricity. What will happen if we charge a balloon by rubbing it in our hair, and then hold it over tissue paper wings of a butterfly?

you will need:

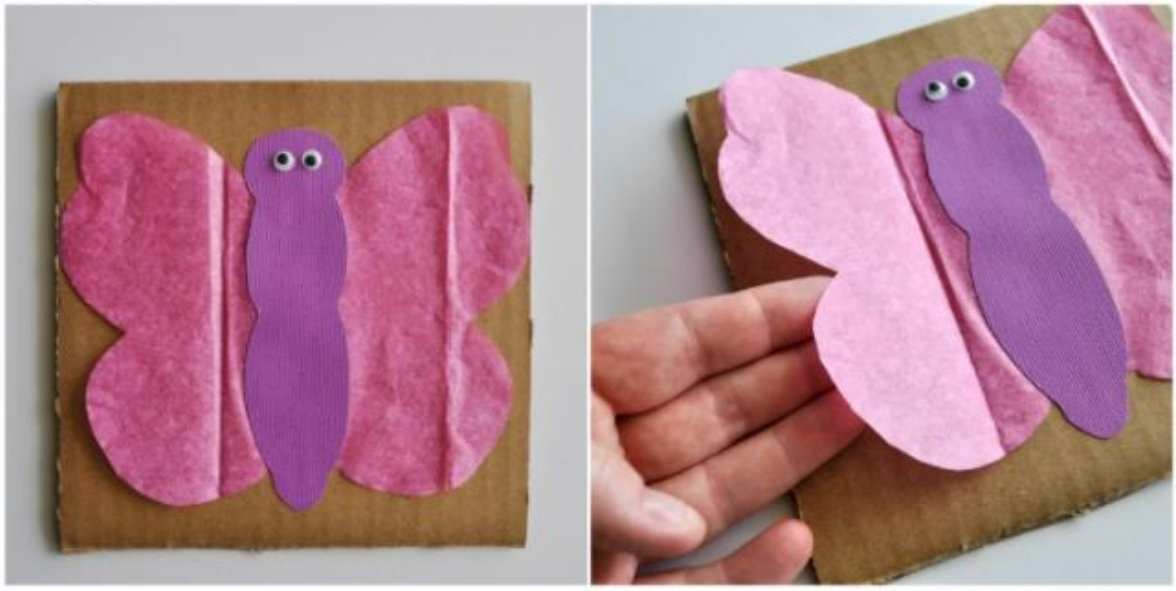
- cardboard
- tissue paper
- cardstock paper
- pencil
- scissors
- googly eyes
- balloon
- glue stick

1. Start by cutting a square of cardboard. I made mine about 7 inches x 7 inches.



2. Use your pencil to draw butterfly wings on your tissue paper. Since my cardboard square was 7" x 7", I just made sure to make them smaller than my square. Cut them out and set them onto your cardboard. DO NOT glue them onto the cardboard!

3. Cut a butterfly body out of your cardstock paper and glue it down the middle of your butterfly and overlapping it onto your cardboard. Again, DO NOT glue the tissue paper wings down. You will want the wings loose like shown in my picture below. Glue your googly eyes down onto your butterfly. I should have drawn antennae on our butterfly but I just didn't think about it at the time. You can add those if you choose.



4. Now comes the fun part. Blow up your balloon. We used water balloons that we had leftover from this summer so they were small in size, but using regular sized balloons would have been even better.
5. Rub your balloon in your hair to give it an electric charge. Now hold the balloon on top of your butterfly, close but not touching it, and watch the wings raise and lower as you move the balloon closer and farther away.

Y5: This term your science topic is: Space

Challenge: Catapult challenge

How can we create a catapult that launches a projectile a long way?

You will need:

Lolly sticks x8

Rubber bands

Plastic spook

Soft items to launch (i.e. marshmallows or pompoms)

1. Investigate how catapults have been used in the past.
2. Tightly secure six sticks together with a rubber band at each end.
3. Take two additional lolly sticks. These will form the arm and the base of your catapult. Secure them together at one end using a rubber and. Position the lolly stick stack horizontally on the surface in front of you. Then sandwich the stack between the arm and the base, facing vertically. Attach a rubber band around the join in a criss-cross shape.
4. Finally, attach a plastic spoon along the arm of your catapult using more rubber bands.
5. How could you improve your catapult to make your projectile travel further? What's the best launch angle?

Y6: This term your science topic is: Human circulatory

Challenge: Make a heart model

Why not follow this youtube demonstration on how to create a heart model:
https://www.youtube.com/watch?v=tqMBLWABMAE