

STEM from Home

Capillary Action

Someone once remarked, “Tears are the words that the heart cannot convey.” Has anyone ever made fun of you for being a cry baby? Don’t be concerned. Crying is excellent for your health, but where and when you cry, counts!

Our eyes remain moist because of tears. But have you ever experienced dry eyes? Tears are unable to moisten our eyes in this state. Have you ever wondered why your eyes become watery when dust particles enter your eyes? Where did this water enter your eyes?

Have you ever considered how melting wax or oil aids in the burning of a candle or an earthen lamp’s wick?

Remember a time when you unintentionally spilt milk or water on the floor. What did you do to immediately clean the floor? You would have grabbed a tissue paper towel and placed it on the spilt milk. Have you ever given a thought that how does a towel absorb all the liquid in a matter of seconds? How has it happened?

Do you want to know more about the science behind all these actions? Capillary action is the phenomena that facilitates all these processes. It is the capillary action that allows the tear ducts in our eyes to release tear fluid. Water from the soil, via the roots, reaches the leaves because of this action. [Click here](#) to read more.

In this STEM card you will show the capillary action on presentation; experiment to see how the water travels up in the plants and do the challenge activity.

Main Activity: Capture the Capillary Action

Introduction

[Capillary action](#) is the natural flow of liquid into a narrow tube. This movement does not require the force of gravity to occur. It often acts in opposition to gravity.

Important Information

Capillary action is a significant activity that occurs constantly in our bodies. The movement of water throughout our cell structure is responsible for the storage of nutrients, supplements, and vital blood plasma. Without it, our body’s cells would not rehydrate, and vital communication between our mind and body would be slowed.

- Water
- One long straw or bamboo stick
- Tape
- Paper towel /filter paper/ a waste white plain cotton handkerchief

What Will You Learn?

- You will be able to find more real-life instances of capillary action.
- How does capillary action help you in performing colour [chromatography](#).
- How to create a collage showcasing instances of capillary action in daily life on google slides.

Let’s get started . Refer these [steps](#).

Now, capture the instances of capillary action and create a picture collage of the same in [google slides](#).

What Will You Need?

- 2 glasses
- Black sketch pen, black whiteboard marker, black permanent marker
- One plate

Bonus Activities

Activity 1: Rainbow Flowers

Have you ever thought of changing the colours of flowers by yourself? Yes, it is possible. The credit goes to Capillary Action. Get ready for becoming the Creative Colour Changer.

What You Will Need

- 5-6 plastic glasses of same size and shape
- Food colours-red,yellow,blue,orange,purple
- 5-6 White colour flowers (each with a stalk)
- Water

How Will You Do

- Fill the glasses with an equal amount of water. Add different food colours to each glass. Ensure that the food colour dissolves completely in water.

- Place one flower with its stalk in each glass. Leave all the glasses for few hours undisturbed. Observe what happens to the white colour of the flowers.

Arouse your friends' curiosity by clicking and sharing pictures of your beautiful different eye-catching flowers. Don't include the glasses pictures. Ask them if they can find similar ones in any garden or nearby park!



Challenge Activity: How High Water Goes?

Who does not love to sip cold beverages or juice through straws? Have you ever noticed the size of the straw while drinking? Is there any difference in the straws used for drinking juices and smoothies? When you drink juice, the straws are thinner, and when you drink smoothies, the straws are thicker. Have you pondered the reason behind this?

Click [this activity](#) to start experimenting.

What Will You Learn

Because of the adhesion (force between water molecules and the surface of the glass), the water ascends in the straws/slender cylinder, forming a meniscus. By drawing the water up the cylinder against gravity, cohesion (force between water molecules) attempts to limit the surface area. The smaller the diameter of the tube, the lower the water level.

Because smoothies are denser than water, they require larger straws, whereas cold drinks or juice require a more slender straw because they are less dense as compared to smoothies.

You can present your final observation digitally using [Docs](#) or [Presentation](#) software. You may also recapitulate capillary action by clicking [here](#).