St Augustine's PRIORY

St Augustine's Priory Science Department

Summer Task

NAME: _____

1. Make an egg carton bird feeder and keep an observation diary of the birds which visit your feeder over two weeks (instructions below in blue)

2. Make a chromatography t-shirt, take some photos and try to explain the Science behind your creation (instructions in red) ***You must have adult supervision for this activity**

3. Make a solar system using recycled materials and by researching information about the different components in our solar system

4. Investigate the best material for keeping a glass of cold water cool in the Sun and write down what you did and what you found out

5. Make a parachute for an egg and discover which material and design works best as a parachute. Draw a diagram of your design and explain what you did in your experiment. ***You must have permission from an adult for this activity because it can get messy!**

Egg carton feeder

Egg Carton Bird Feeders are a great way to recycle egg cartons while feeding the beautiful birds of the world. With minimal supplies, you can create an eco-friendly way to invite little guests into the yard.

Materials

Egg Carton
String
Scissors
Glue
Bird Seed

Instructions

1. Carefully cut off top of egg carton and punch hole in four corners.

2. Cut two pieces of string about a foot long each.

3. Thread string through holes diagonally and tie ends into knots over corners. Use a dab of glue for extra security.

4. Add bird seed and enjoy the birds!

Chromatography t-shirt

Chromatography is:

A method of separating the substances in a mixture by the rate they move through or along a medium.

Which is just a fancy way of saying that chromatography is a way of separating substances along some type of filter material, like a t-shirt or a coffee filter. Scientists use a solvent, which will dissolves all the molecules in a mixture. For this method to work, the molecules in the mixture need to be different sizes. This is so that the solvent can carry the molecules along the filter material at different rates. Basically, the smaller the molecule is, the farther a solvent will carry it. In this way, chromatography can separate the molecules in a mixture according to their size.

Equipment:

- White t-shirt
- Isopropyl Alcohol (80% or above)
- Eyedropper
- Coffee can (or a wide-mouthed jar or bowl)

- Rubber band
- Permanent markers in a variety of colors
- Newspaper

1. Lay a few newspapers down on your work surface. Create a design with different coloured dots. Your design will spread so don't make it too big!
2. Place the part of the design over the centre of the coffee can and secure it will rubber bands.
3. Ask an adult to carefully drop several drops of the alcohol in the centre of the design and watch what happens! If the spreading out stops before the end of the can is reached, add a few more drops of alcohol.
   (***Note –*** *You will want to do this step in a well-ventilated area*.)
4. Repeat over and over again until you are happy with your design
5. Let it dry overnight, put the t-shirt on, and wear your experiment for everyone to see!
   (***Note –*** *You can soak the t-shirt in saltwater to help set the colours.*)

You should see that as the alcohol spreads out, it picks up part of the ink and spreads it out – creating a beautiful design. Markers are made up of several different types of ink, which is soluble in isopropyl alcohol. The alcohol picks up the molecules of ink and carries them along the t-shirt. Some of these ink molecules are heavier than the others. So, it separates the ink into different colours by depositing the heavier molecules sooner than the lighter ones.