**Falling Coffee Cup**

Purpose:

In this activity, students will demonstrate microgravity as it would occur in a drop tower.

Objectives:

* Make predictions and test their hypothesis.
* Understand the effects of microgravity.

Materials:

* Styrofoam coffee cup
* Sharp pencil
* Catch bucket
* Water

Procedure:

1. Break up into groups of 4.
2. Punch a hole near the bottom of the cup with a pencil.
3. Cover the hole with your finger and fill half of the cup with water.
4. Remove your finger for a few seconds and observe how gravity causes the water to pour through the hole and into the bucket.
5. Cover the hole with your finger and refill the water.
6. Make a prediction of what will happen if you drop the filled cup.
7. Drop the cup from 2 meters and observe what happens as it falls into the bucket.

Conclusion:

* Does the water pour from the hole as the cup falls? Why or why not?

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* What will happen if you toss the filled cup in a parabolic trajectory? (Gently toss the cup, avoid rotation)

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**Candle Under Water**

Purpose:

In this activity, students will demonstrate the presence of atmospheric pressure.

Objectives:

* Make predictions and test their hypothesis.
* Understand the effects of microgravity.

Materials:

* Water

Step 6

* 2 glass cups
* Colored dye
* A saucer plate

Step 4

* A candle (birthday candle or larger)
* Lighter/matches

Procedure:

1. Break up into groups of 4.
2. Place a candle in the middle of a saucer plate.
3. Pour some color dye into a cup with water.
4. Pour enough water into the saucer plate so it does not overfill.
5. Light the candle.
6. Cover the candle with another glass cup.

Conclusion:

* What is happening to the water on the saucer plate? Why?

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**Iron in Cereal**

Purpose:

In this activity, students will be able to visually observe the iron in cereal.

Note: this experiment needs to sit for **one hour** before it is ready.

Objectives:

* Make predictions and test their hypothesis.
* Students will use magnets to discover there is iron in cereals.
* Students learn iron is a needed mineral for life and part of a balanced diet.

Materials:

* Plastic ziplock bag
* Box of Total cereal (or any cereal that has 100% of the iron in the nutrition label)
* Box of sugary cereal with little to no Iron listed in the nutrition label to be used as a comparison (this is box is optional and can be used to compare cereals to find which one has enough iron to meet your daily recommended needs).
* Strong magnet

Procedure:

1. Pour the Total cereal into a plastic bag.
2. Fill the bag ¾ full with water and seal tightly.
3. Let the cereal water mixture sit for **one hour**!
4. Place the magnet in your hand and set the bag on top.
5. Holding the bag in place with your other hand swish the bag around for 15-20 seconds.
6. Flip the bag so the magnet is now on top.
7. Examine what has collected beneath the magnet – see if you can move it around.

Conclusion:

* Why is there iron in the cereal?

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* Recall the PowerPoint presentation, do astronauts need more or less than the normal amount of iron in their diet and why?

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