

# Pendulum Painting

## A STEAM - Integrated Classroom Lesson

### Materials

- Place to hang a pendulum
- String
- Metal washer
- One large paperclip per pendulum
- Paint (mixed with equal parts water)
- Small waxed paper cups
- One sharp pencil
- Newspaper for catching messes
- Art paper
- Sharpie markers (Optional)
- Water color paint (Optional)

### Objectives:

- Understanding Isaac Newton's 1<sup>st</sup> Law of Motion
- Visually seeing the effect of gravity on a moving object
- Creating a pattern using a spherical pendulum
- Predicting how variables will change the look of the painting

### Activity Instructions:

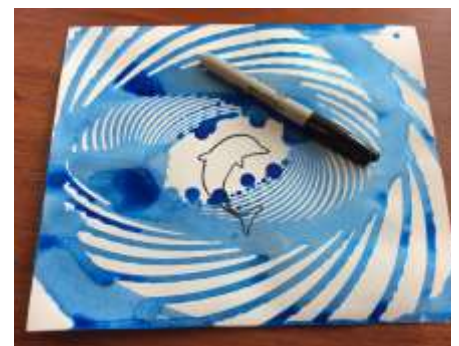
- 1) Find a place to hang your pendulum string so that it is just above a flat surface with a string between 8 and 12 inches long
- 2) Tie washer to your string
- 3) Bend paperclip into a "W" shape and slip it onto the washer
- 4) Poke a little hole in the bottom of a paper cup with a pencil



Above: Washer on String



Cup pendulum after swinging



Draw in elements to add to the picture - we used sharpie and watercolors to complete the scenes

- 5) Poke a hole on each side of the top of the cup and slip the paper clip through the holes to make a bucket on your pendulum
- 6) Holding a finger over the hole on the bottom of the cup, grasp the cup and pour a bit of paint in the cup - it should be the consistency of ink
- 7) When releasing your cup, aim it at a slight curve so that it will travel in a circular direction
- 8) Once finished, keep the painting flat while drying
- 9) Plan out a picture to integrate with your spiral background using a cut-out of a drawing or a stencil to trace onto your paper in pencil. Trace with Sharpie for a bold outline
- 10) Paint in shapes and parts of the background to complete a colorful, complete work of art

Note: If you have painted with acrylic-based paints, using water color over the paint will not disturb your spirals. If you have used tempera or other non-permanent paint, take care to go around the lines so they do not blur.

