

## LEARNING MATERIALS

### Convection Spiral

Convection is the transfer of heat within a fluid (gas or liquid) due to movement of molecules. Molecules in a fluid can move around, and they tend to distribute the thermal energy uniformly, so when whenever we add heat to a liquid, molecules move around to distribute this energy all over the fluid, and this motion is basically convection.

In this experiment, we use a candle to create a hot layer of air. In this way, we create a convection current around the candle, and a modified Archimedes' screw is placed in the path so moving air molecules can apply a force on the spiral and this force can turn the spiral around due to the shape of the spiral.

#### Questions for testing comprehension:

- (1) What happens if we add more candles? Will the spiral move faster or slower?
- (2) Does the room temperature have any effect on the experiment?

#### Further reading and materials:

- (1) <https://en.wikipedia.org/wiki/Convection>
- (2) [https://en.wikipedia.org/wiki/Archimedes%27\\_screw](https://en.wikipedia.org/wiki/Archimedes%27_screw)
- (3) [https://en.wikipedia.org/wiki/Archimedean\\_spiral](https://en.wikipedia.org/wiki/Archimedean_spiral)