# Teacher's Guide

## Balanced and Unbalanced Forces Station Activities

Students will:

- complete simple experiments that model and explore the effects of balanced and unbalanced forces acting on objects with a focus on friction, gravity, and magnetism.

To begin these stations, you will need 6 stations throughout the room; however, there will technically be three because you'll have two of the same thing. You will need a gravity station (2), a friction station (2), and a magnetism station (2). In this way, your groups will be smaller.

Teacher Tips:

- Make sure the instructions are laid out at each station so students will know how to complete the station.
- Be sure to tell students to follow the directions as given and discuss safety precautions.
- Setting a timer for each station is recommended so that students can use their time wisely. They will be exploring three stations.
- Group roles can also be assigned.

You will need the station directions at each station. In addition, each student will need the student sheets for all three stations.

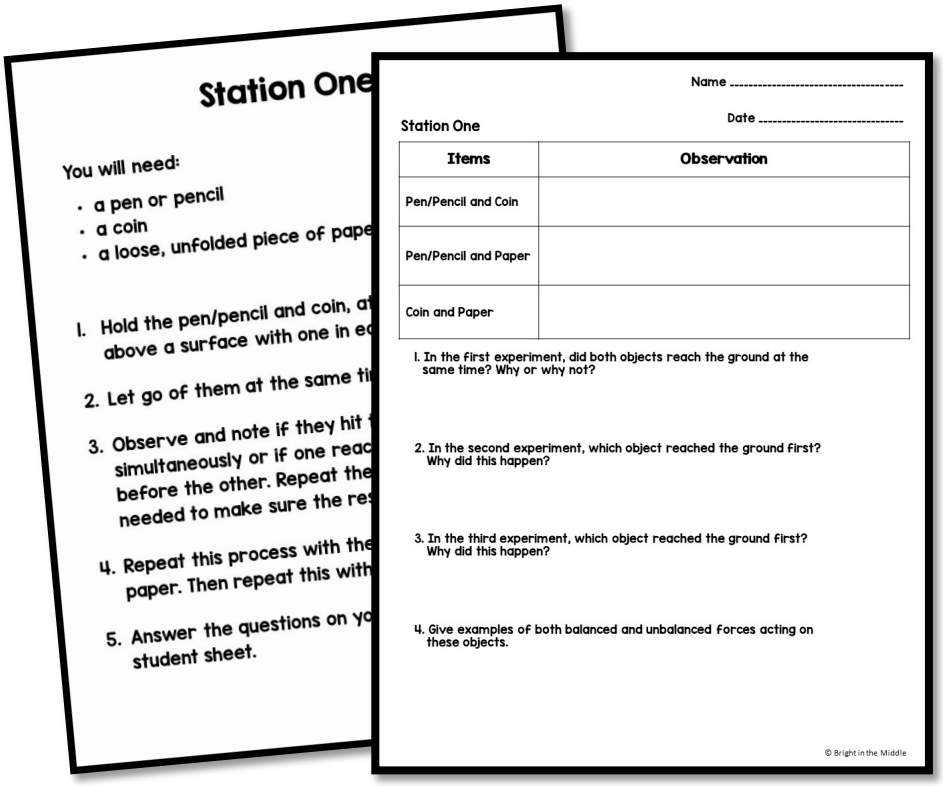
Station 1: Students will explore the force of gravity and how air resistance comes into play. You will need a pen or pencil, a coin, and a loose, unfolded piece of paper for this experiment.

Station 2: Students will explore the force of friction and how it can be helpful and harmful for achieving goals. You will need 5 books and 5 round pencils for this experiment. You will also need a jar with a lid and liquid soap.

Station 3: Students will explore the force of magnetism. This is a free-inquiry approach. You will need materials such as bar magnets (labeled N and S), cotton balls, nails, paper clips, coins, rocks, and key for this experiment.

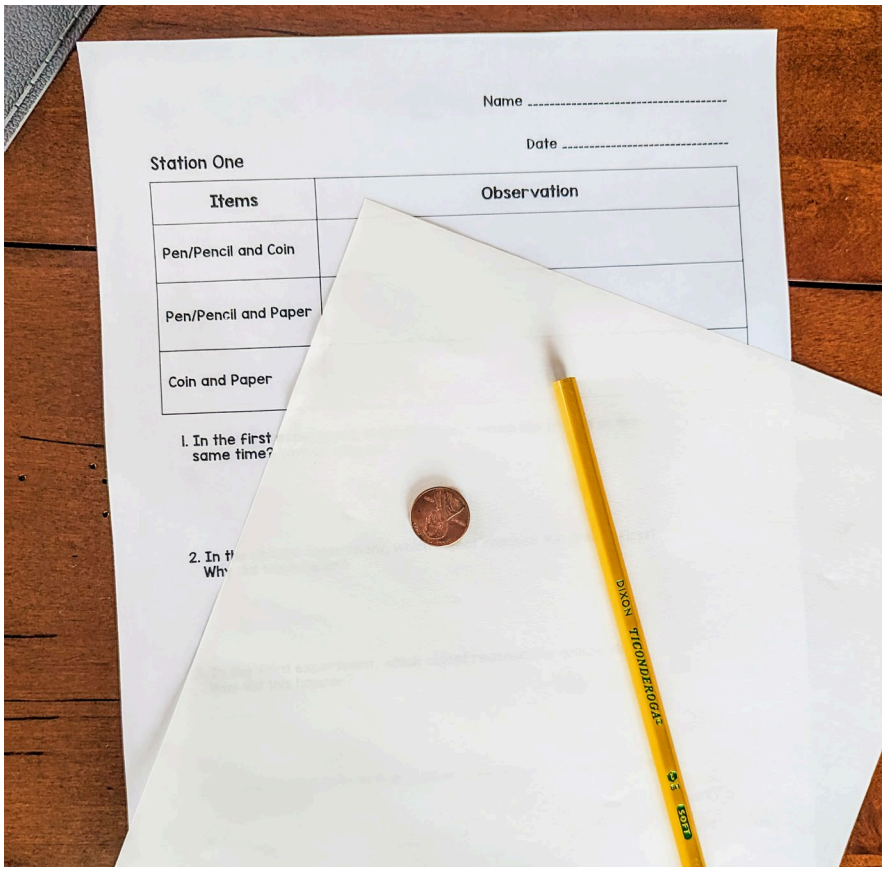
Before or after completing these activities, students can learn about gravity, friction, and magnetism from this lesson.

# Station One

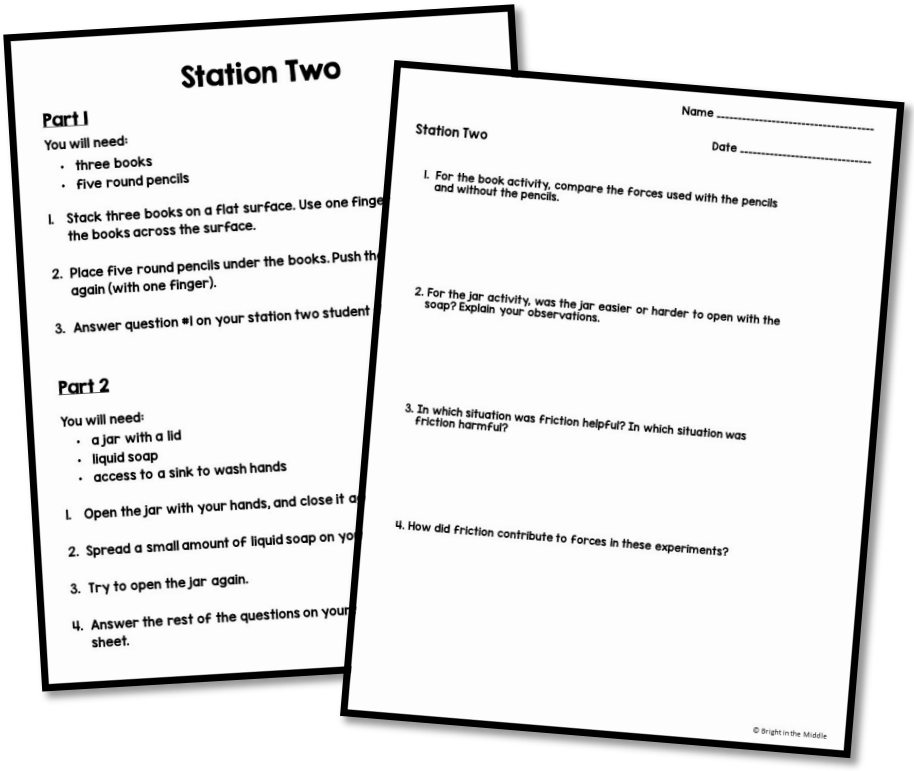



## Included:

- station directions
- student sheet
- student answer key



# Station Two

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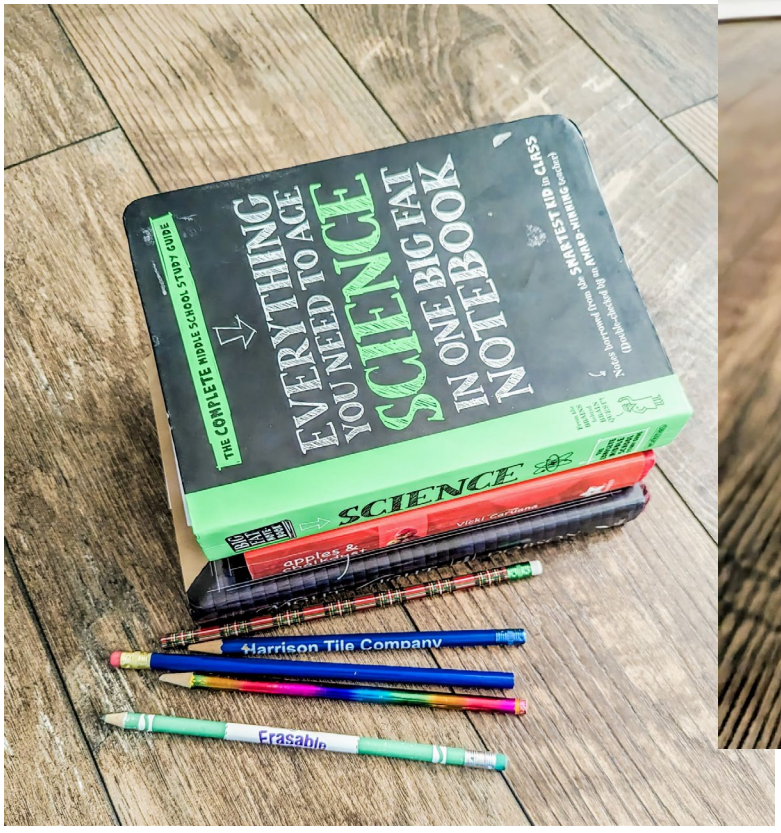
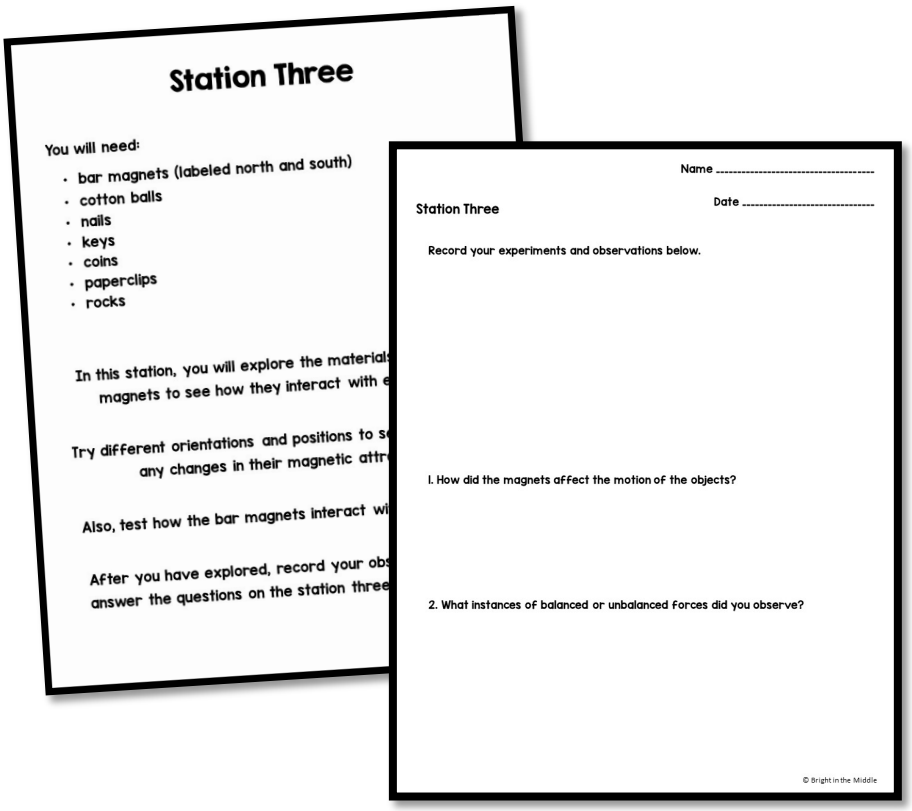



# Station Three



Station Three

You will need:

- bar magnets (labeled north and south)
- cotton balls
- nails
- keys
- coins
- paperclips
- rocks

In this station, you will explore the materials
magnets to see how they interact with e

Try different orientations and positions to s
any changes in their magnetic attr

Also, test how the bar magnets interact wi

After you have explored, record your obs
answer the questions on the station three

Name _____

Date _____

Station Three

Record your experiments and observations below.

1. How did the magnets affect the motion of the objects?

2. What instances of balanced or unbalanced forces did you observe?



## Included:

- station directions
- student sheet
- student answer key