

# Observing Objects

## Task Information

**Grade:** 4th Grade

**Content:** Physical Science  
**ID2.1, ID2.2, 1D2.3** - An object can be pushed or pulled to cause the object to change its motion

**Format:** Manipulative

**Purpose:**

- To determine the students ability to differentiate between two types of motion

**Skills:**

**Primary:** observation  
**Secondary:** interpreting data

**Time:** 10 - 15 minutes

**Materials:**

**Teacher**

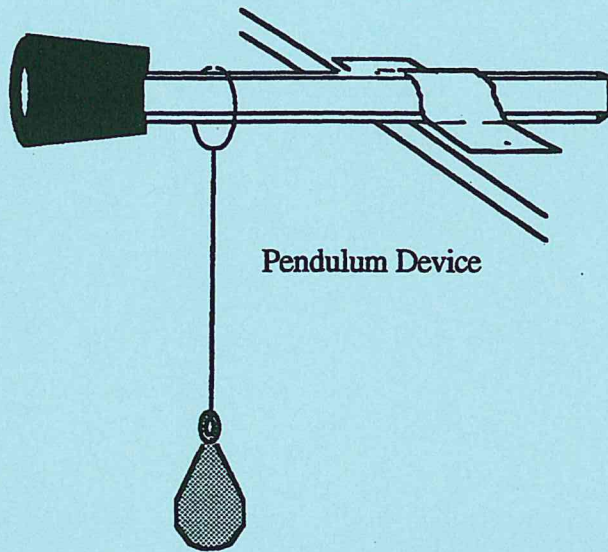
- new, unsharpened pencils
- florist or craft wire (thin)
- fishing sinkers (1-2oz)
- small springs (flexible)
- #4 or #5 black rubber stoppers with center holes.
- duct tape (heavy duty tape)

**Per Student**

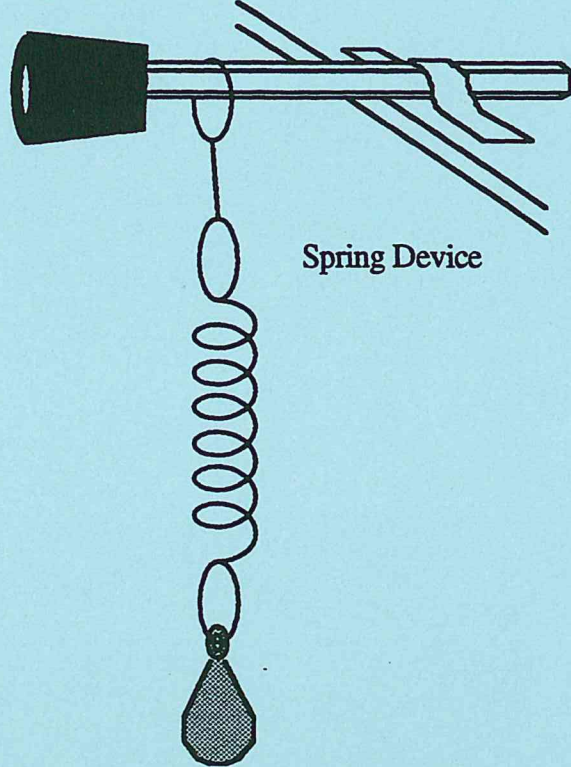
- pendulum device
- Pendulum spring device  
 (diagrams of devices are shown below.)

**Preparation:**

- Springs should be flexible enough that a 1oz. or 3/4oz lead fishing sinker will stretch the spring. Springs can be purchased from a hardware store.
- The wire for the devices should be a very thin, flexible craft wire.
- Assemble the pendulum and spring devices as shown below.



Pendulum Device



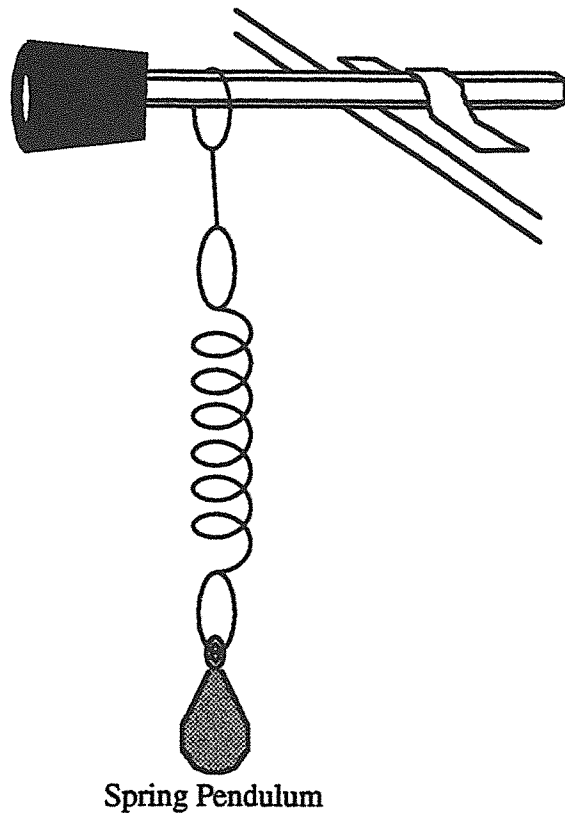
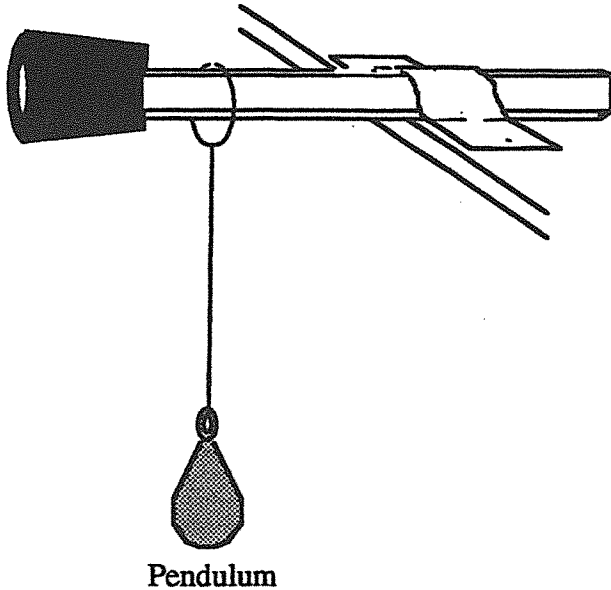
Spring Device

**Safety:** wear goggles

# Observing Objects

**Task:** At this station, you will be observing the motion of two different types of objects.

## Materials:



## Directions

1. Experiment with the pendulum device to see how you can make it move. Observe it carefully.
2. In the space below, describe in detail two ways that the pendulum can swing or move.

1. \_\_\_\_\_  
\_\_\_\_\_

2. \_\_\_\_\_  
\_\_\_\_\_

**Please Continue on the Next Page**

- 3. Experiment with the spring pendulum to see how you can make it move. Observe it carefully.
- 4. In the space below, describe in detail two ways that the spring pendulum can move.

- 1. \_\_\_\_\_  
\_\_\_\_\_
- 2. \_\_\_\_\_  
\_\_\_\_\_

- 5. Describe one way that the movements of the pendulum and spring pendulum are alike.

\_\_\_\_\_  
\_\_\_\_\_

- 6. Describe one way that the movements of the pendulum and spring pendulum are different.

\_\_\_\_\_  
\_\_\_\_\_

# Observing Objects - Scoring Rubric

Maximum score - 6 points

## 2. Pendulum movement 2 points total

**Standard:** The student describes 2 ways that the pendulum moves.

**Criteria:**

- 1 point for each appropriate description

Sample of acceptable answers:

- back and forth
- in circles
- side to side
- right to left
- sideways
- around and around

\*\*\* The student cannot describe the movement by stating only that the pendulum swings or moves.

## 4. Spring pendulum movement 2 points total

**Standard:** The student accurately describes 2 ways the spring pendulum moves.

**Criteria:**

- 1 point for each appropriate description

Sample of acceptable answers:

- |                     |                     |
|---------------------|---------------------|
| • back and forth    | • up and down       |
| • side to side      | • right to left     |
| • around in circles | • bounces           |
| • sideways          | • around and around |
| • jiggles           | • jumps             |

\*\*\* The student cannot describe the movement by stating only that the spring pendulum swings or moves.

## 5. Description of similar movement 1 point total

**Standard:** The student states one movement that the pendulum and spring pendulum share.

**Criteria:**

- 1 point for an appropriate comparison

Sample of acceptable answers:

- back and forth
- around in circles
- right to left
- side to side

\*\*\* The student cannot only state that both pendulums swing or move.

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**6. Description of different movement****1 point total**

**Standard:** The student states one movement that the pendulum and spring pendulum do not share.

**Criteria:**

- 1 point for an appropriate contrast

**Sample of acceptable answers:**

- The spring pendulum moves up and down, but the pendulum does not.
- The spring pendulum bounces, but the pendulum does not.

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**Total possible score - 6 points**

Student ID \_\_\_\_\_ Scoring Form - Observing Objects  
Male / Female

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- |                                      |   |   |   |
|--------------------------------------|---|---|---|
| 2. Pendulum movement                 | 0 | 1 | 2 |
| 4. Spring pendulum movement          | 0 | 1 | 2 |
| 5. Description of similar movement   | 0 | 1 |   |
| 6. Description of different movement | 0 | 1 |   |

Total Score \_\_\_\_\_  
Total possible score - 6 points

Student ID \_\_\_\_\_ Scoring Form - Observing Objects  
Male / Female

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- |                                      |   |   |   |
|--------------------------------------|---|---|---|
| 2. Pendulum movement                 | 0 | 1 | 2 |
| 4. Spring pendulum movement          | 0 | 1 | 2 |
| 5. Description of similar movement   | 0 | 1 |   |
| 6. Description of different movement | 0 | 1 |   |

Total Score \_\_\_\_\_  
Total possible score - 6 points

Student ID \_\_\_\_\_ Scoring Form - Observing Objects  
Male / Female

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- |                                      |   |   |   |
|--------------------------------------|---|---|---|
| 2. Pendulum movement                 | 0 | 1 | 2 |
| 4. Spring pendulum movement          | 0 | 1 | 2 |
| 5. Description of similar movement   | 0 | 1 |   |
| 6. Description of different movement | 0 | 1 |   |

Total Score \_\_\_\_\_  
Total possible score - 6 points

Student ID 2CA-30 #1 Scoring Form - Observing Objects  
Male / Female

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- |                                      |   |   |   |
|--------------------------------------|---|---|---|
| 2. Pendulum movement                 | 0 | 1 | 2 |
| 4. Spring pendulum movement          | 0 | 1 | 2 |
| 5. Description of similar movement   | 0 | 1 |   |
| 6. Description of different movement | 0 | 1 |   |

Total Score 1  
Total possible score - 6 points

Student ID 2CA-2 #2 Scoring Form - Observing Objects  
Male / Female

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- |                                      |   |   |   |
|--------------------------------------|---|---|---|
| 2. Pendulum movement                 | 0 | 1 | 2 |
| 4. Spring pendulum movement          | 0 | 1 | 2 |
| 5. Description of similar movement   | 0 | 1 |   |
| 6. Description of different movement | 0 | 1 |   |

Total Score 4  
Total possible score - 6 points

Student ID 1MSJA-10 #3 Scoring Form - Observing Objects  
Male / Female

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- |                                      |   |   |   |
|--------------------------------------|---|---|---|
| 2. Pendulum movement                 | 0 | 1 | 2 |
| 4. Spring pendulum movement          | 0 | 1 | 2 |
| 5. Description of similar movement   | 0 | 1 |   |
| 6. Description of different movement | 0 | 1 |   |

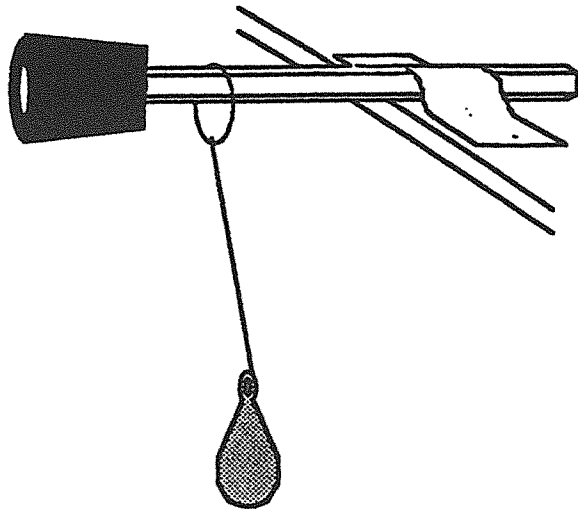
Total Score 6  
Total possible score - 6 points



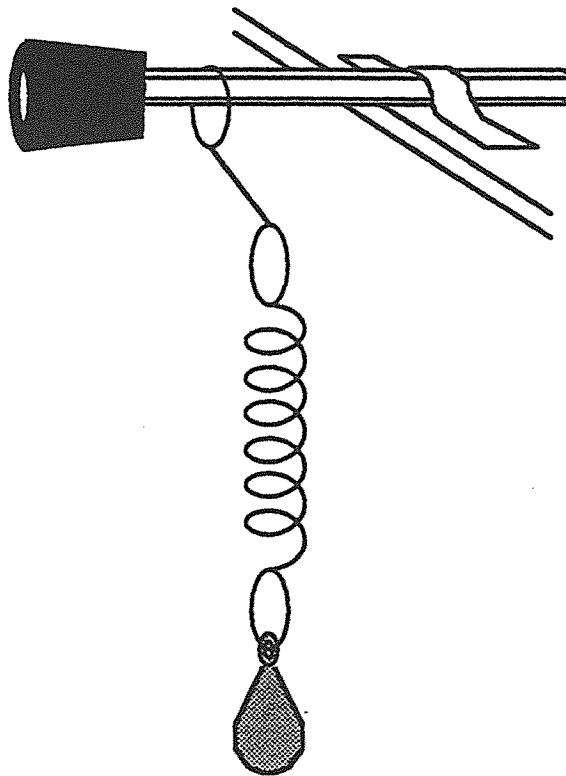
Task: At this station, you will be observing the motion of two different types of objects.

MATERIALS

2CA-30 F  
#1



Pendulum Device



Spring Device

DIRECTIONS

Experiment with the pendulum device to see how you can make it move. Observe it carefully.

In the space below, describe in detail two ways that the pendulum device can move.

1. you can twitch them

2. you can move the pencil

Experiment with the spring device to see how you can make it move.  
Observe it carefully.

#1

In the space below, describe in detail two ways that the spring device can move.

1. they move at the same time

2.

Describe one way that the movements of the pendulum and spring devices are alike.

they both move

Describe one way that the movements of the pendulum and spring devices are different.

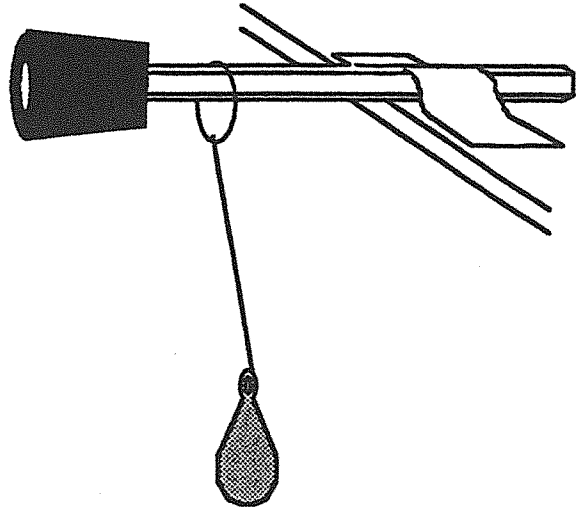
the spring device moves up and down and the pendulum stays straight and does not have a spring on them

# Observing Objects

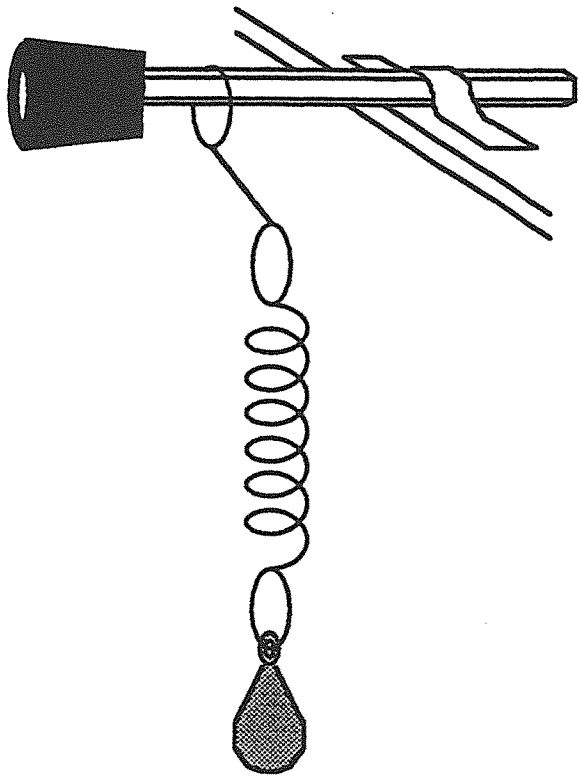
**Task:** At this station, you will be observing the motion of two different types of objects.

## MATERIALS

2CA-2F  
#2



Pendulum Device



Spring Device

## DIRECTIONS

1. Experiment with the pendulum device to see how you can make it move. Observe it carefully.
2. In the space below, describe in detail two ways that the pendulum device can move.

1. *swing back,*

2. *swing forth,*

Experiment with the spring device to see how you can make it move.  
Observe it carefully.

In the space below, describe in detail two ways that the spring device can move.

1. buys up

2. buys down

Describe one way that the movements of the pendulum and spring devices are alike.

swing back and forth.

Describe one way that the movements of the pendulum and spring devices are different.

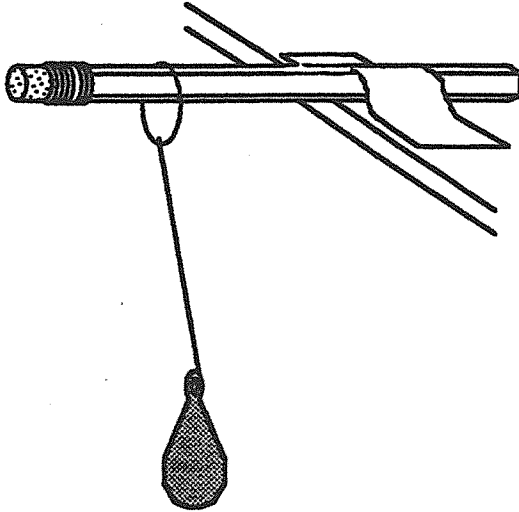
one bounces up and down

2CA-2

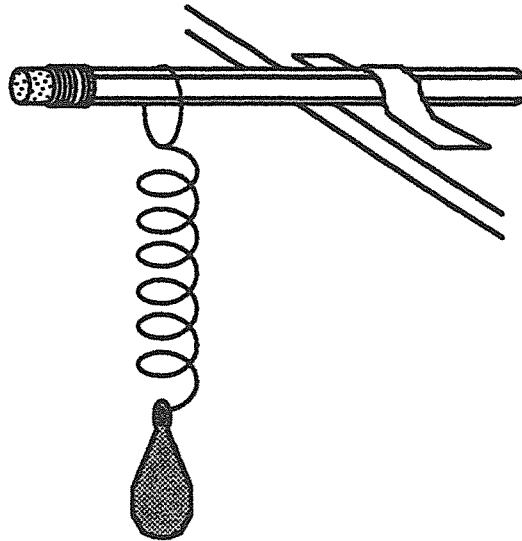
## Observing Objects

**Task:** At this station, you will be observing the motion of two different types of objects.

### MATERIALS



Pendulum Device



Spring Device

### DIRECTIONS

1. Experiment with the pendulum device to see how you can make it move. Observe it carefully.
2. In the space below, describe two ways that the pendulum device can move.
  1. side ways
  2. round and round
3. Experiment with the spring device to see how you can make it move. Observe it carefully.

#3

4. In the space below, describe two ways that the spring device can move.

1. up and down

2. sideways

5. Describe one way that the movements of the pendulum and spring devices are alike.

they both move sideways

6. Describe one way that the movements of the pendulum and spring devices are different.

One moves round and round  
another moves up and down