

Name: \_\_\_\_\_

## Racing Radiometers Student Data Sheet

Observe the vanes on the radiometer move when it is placed in sunlight. Think of two questions that can be answered with a "Yes" or "No" by the teacher. Write your questions on the lines below. (Example: Will it stop moving if you put it in the refrigerator? *Yes!*)

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

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

Listen carefully to other students' questions. Write down any questions you hear that might help solve the radiometer mystery.

\_\_\_\_\_

\_\_\_\_\_

Using your observations and the information from the "Yes" or "No" questions and answers, draw a **labeled** diagram in the box below that shows the parts of the radiometer. Write a brief explanation of how you think it **might** work. (The black and silver kite-like structures at the top of the instrument are called vanes.) Please remember that the radiometer must stay in the center of the table!



I think the radiometer spins because

Choose one question that your group wants to answer using these materials: radiometer, flashlight, mirror, hair dryer, straw, and lamp.

Our question: \_\_\_\_\_

Discuss the steps needed to test your group's radiometer question, and write them below. Ask your teacher to approve and sign your test steps before you begin testing. Teacher's initials: \_\_\_\_\_

We will use these materials: \_\_\_\_\_

We will follow these steps: (Remember, you may not move the radiometer!)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

Write the results of your group's experiment below. Be prepared to tell the class about your test and discuss the results.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

We conclude that radiometers spin because: \_\_\_\_\_

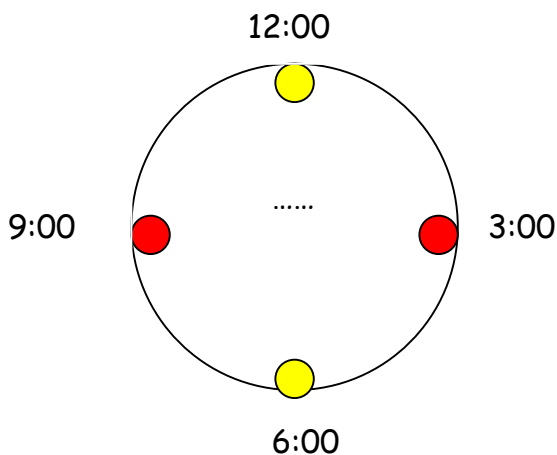
\_\_\_\_\_

\_\_\_\_\_

# Twirly Whirly Sunspots

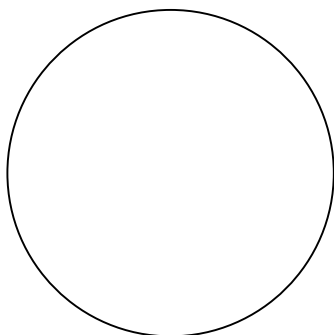
## Class Transparency

1. Place the drops of food coloring in the plate as shown in the diagram. Drop yellow at 12:00 and 6:00 and red at 3:00 and 9:00.
2. Carefully add a small shake of pepper in the middle of the dish without disturbing the dots of food color.



3. Dip a toothpick in the dish soap. Wait until the signal is given by the teacher to put the toothpick in the middle of the plate where the pepper was placed.
4. Draw and color what happened after the soap was added.

AFTER  
SOAP



5. How is the model like the Sun's surface?
6. How is the model different from the Sun's surface?

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## Solar Water Heater Class Data Sheet

I predict that the water in the \_\_\_\_\_ bag is more likely to become warmer when placed in the Sun for six minutes.

Instructions: Look at the back of your group's thermometers for your group number. Record all of your group's temperature readings for the black bag and the white bag in the row next to your thermometer number. Data from the other groups will be shared in class to complete the rest of the chart.

### Black Bag

Group #	Starting Temperature (° C)	After 2 minutes (° C)	After 3 minutes (° C)	After 6 minutes (° C)
1				
2				
3				
4				
5				
6				
7				

### White Bag

Group #	Starting Temperature (° C)	After 2 minutes (° C)	After 3 minutes (° C)	After 6 minutes (° C)
1				
2				
3				
4				
5				
6				
7				

## Star Power Product Scoring Rubric

Research	Product Design	Application	Presentation
4 Research is accurate, clear, and very detailed.	4 Creative design & use of materials.	4 A clear, unique application of concepts through explanation, construction, or illustrations	4 Explanations are accurate, clear, and very detailed. Entertaining and creative!
3 Research is accurate, clear, and fairly detailed.	3 Good choice of design and materials.	3 A clear application of concepts through explanation, construction, or illustrations	3 Explanations are accurate, clear, and fairly detailed. Creative!
2 Research is limited in scope. More preparation needed.	2 Design and use of materials are similar to previous activities.	2 A partial application of concepts through explanation, construction, or illustrations.	2 Explanations are limited but accurate, and are somewhat clear. More preparation needed.
1 Very little research is attempted.	1 The product is incomplete.	1 Product is not an application of concepts.	1 Explanations are limited, unclear, and inaccurate