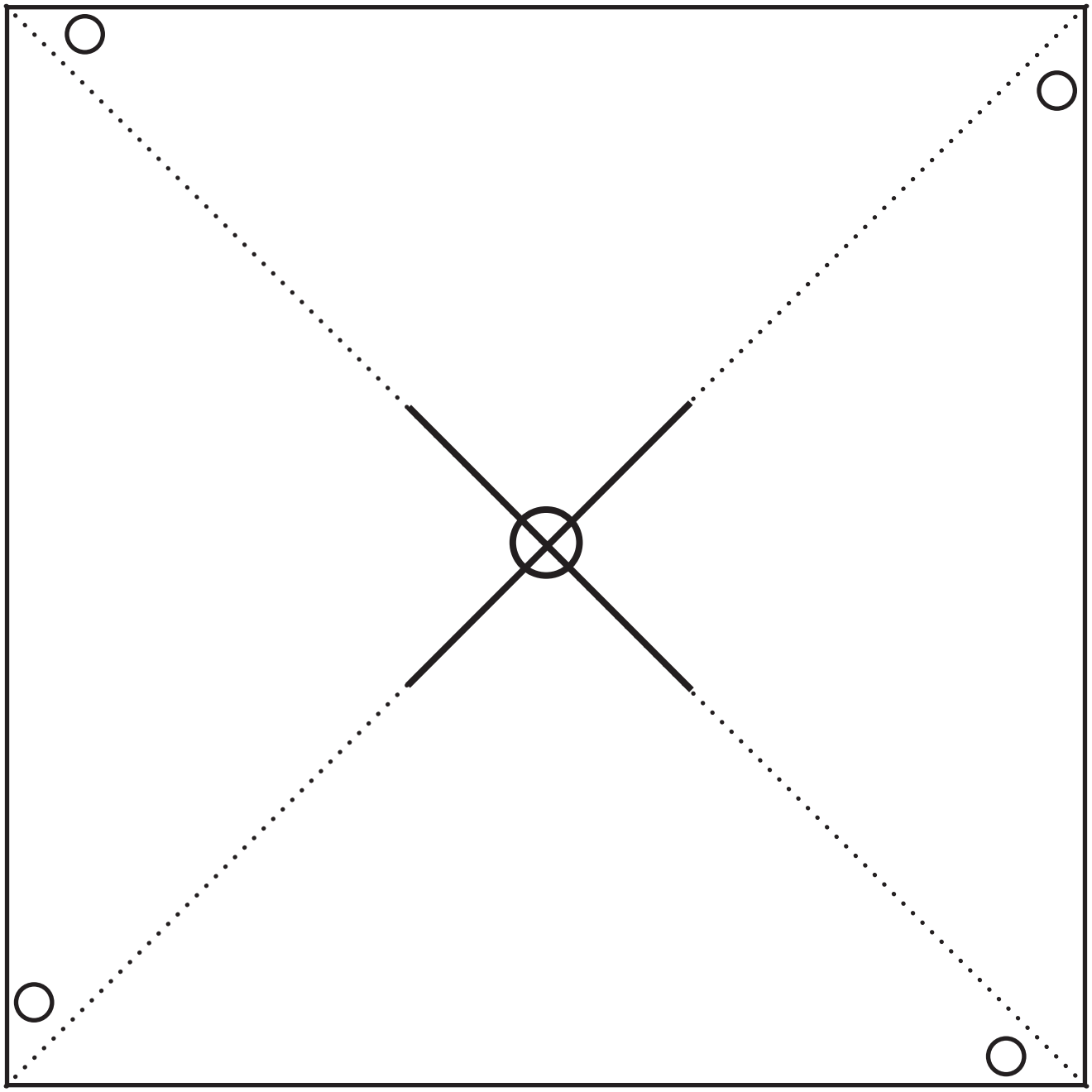
Pinwheel Pattern



Directions:

1. Cut out a square of cardstock.
2. Cut along two diagonal lines to within $^{3}/_{4}$ inch of the center of the square
3. Fold the corners marked with circle into the center.
4. Pin, tape, or staple the layers together in the center.

Forces and Motion with Pinwheels

Name:

Predictions and Observations

1. Blow lightly on your pinwheel. Observe what happens. Blow as hard as you can. Observe what happens. Record the difference between the two trials:

_____

_____

_____

2. See if you can get your pinwheel to move in a clockwise direction, and then in counter-clockwise direction. Explain how you were able to make it spin in different directions.

_____

_____

_____

3. Write your prediction below of what you believe will happen when you use the fan to create a wind force. After creating the wind force with the fan, record your observation.

Prediction	Observation

How did the force of the fan compare to the force of the wind you created by blowing in step 1?

_____

_____

Forces and Motion with Pinwheels

Predictions and Observations

4. Write your prediction below of what you believe will happen when you use the hair dryer to create a wind force. After creating the wind force with the hair dryer, record your observation.

Prediction	Observation

How did the force of the hair dryer compare to the force of the wind you created by blowing in step 1?

_____

_____

Challenge experiments:

- Use a straw to create a wind force. See if you can get your pinwheel to spin as fast as it did with the fan.
- See how fast you can get your pinwheel to spin. See how lightly you can blow on it and have it not spin.
- Have both partners blow on the pinwheel at the same time. One should be blowing to make it move clockwise, and the other blowing to make it move counterclockwise. See if you can get the two forces to balance, so that the pinwheel doesn't actually move at all.

If you try a challenge experiment, be sure to record your observations on another page.

Forces and Motion

CLOZE activity key

Word Bank

rest	turbine	force
energy	more	wind
faster	motion	

1. A wind ___**turbine**___ is a device that spins to produce electrical __**energy**__.
2. Wind is a___**force**___ that results in the___**motion**___ of a turbine spinning.
3. The ___**faster**___ the wind is blowing; the ___**more**___ energy that will be produced by a turbine.
4. If there is no __**wind/force**__, a turbine will be at _____**rest**_____.

How does using wind power to generate electricity help us to be stewards of Wyoming's resources?

Student's answers will vary. Check to see if student is making a stewardship connection.

Credits/Sources:

U.S. Department of Energy. (n.d.). Animation: How a Wind Turbine Works. Retrieved June 28, 2017, from https://energy.gov/eere/wind/animation-how-wind-turbine-works

Home Training Tools Ltd. (n.d.). Experiment with Wind Power: Pinwheel Wind Turbine. Retrieved June 28, 2017, from https://www.homesciencetools.com/a/wind-energy-science-newsletter/

Forces and Motion

CLOZE activity key

Word Bank

rest	turbine	force
energy	more	wind
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1. A wind _____ is a device that spins to produce electrical _____.

2. Wind is a_____ that results in the_____ of a turbine spinning.

3. The _____ the wind is blowing; the _____ energy that will be produced by a turbine.

4. If there is no _____, a turbine will be at _____.

How does using wind power to generate electricity help us to be stewards of Wyoming's resources?

_____

_____

_____

_____

_____

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Home Training Tools Ltd. (n.d.). Experiment with Wind Power: Pinwheel Wind Turbine. Retrieved June 28, 2017, from https://www.homesciencetools.com/a/wind-energy-science-newsletter/