PEDAL, COAST, AND BALANCE

CONCEPT:

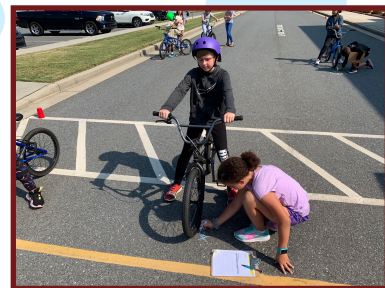# HOW FAR CAN YOU COAST WITHOUT PEDALING?

OBJECTIVE:

Determine what body position and/or riding methods you can use to increase your distance.

MATERIALS:

☐ Cones or markers
☐ Tape measure

ENVIRONMENT:

This experiment works best on a flat surface. Find an area with additional space to allow for further coasting. 50 feet wide x 150 feet long is ideal.
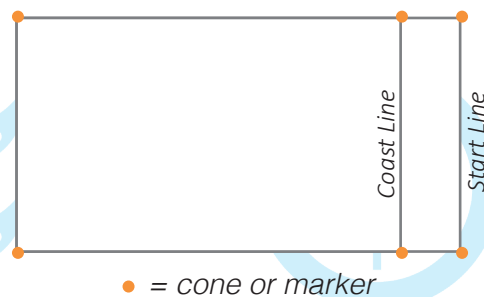
HANDS-ON ACTIVITY:

Before you start, record your predictions using the Data Sheets found on pages 20 and 21.

Establish your grid using cones. Set your "coast line" 10 feet in to start; shorten it to 5 feet for older age groups. Have your partner at the opposite end of the grid, standing on the side with a cone or marker, prepared to record findings.

Pedal to the coast line. When your front tire crosses the line, stop pedaling and coast in a straight line as far as you can. When you come to a stop, have your partner mark your progress. Who can ride the farthest distance?

Repeat each method at least three times to create a good sample set. Record your findings on the Data Sheets on pages 20 and 21.

Coast Line *Start Line*

● *= cone or marker*

INVESTIGATIONS:

Does body position have an effect on your distance? Try standing versus sitting. What about bouncing or moving your body up and down? Did you try leaning forward or backwards? Does it matter if you keep the handlebars straight?

How does the riding surface factor in? Do you think you can coast farther on pavement versus dirt or gravel?

Discuss your hypothesis with your partner using the "Key Terms" below. Please be prepared to present supporting evidence explaining your observations.

KEY TERMS:

Resistance (wind, rolling), gravity, force, momentum, variable

BMX APPLICATION:

Pumping is a fundamental BMX skill where you push down and out through your arms and legs to create a downward force on the bike generating propulsion. In short, you pull up on your handlebars as you approach the bump and push down on the handlebars and pedals as you come down the backside of the bump, repeating this motion to create and keep momentum. Your head is up and you are staying off the seat, both elbows and knees loose to absorb the bumps. Since BMX bikes do not have shocks or suspension, your arms and legs become the shock absorbers.

If you think of a spring, the spring compresses down storing that energy before it uncoils and returns that energy. The same concept applies in pumping. If you watch a BMX rider on a rhythm section, they pump without pedaling, but manage to maintain or increase their speed.

RELATED VIDEO:

www.usabmxfoundation.org/pcbvideo

SCAN ME
FOR VIDEO

ABA 1983 * NATL. NO.1
AA Pro: Brian Patterson
Men Amateur: Doug Davis
Women Amateur: Cheri Elliot
Cruiser: Brett Allen

ABA 1984 * NATL. NO.1
AA Pro: Pete Loncarevich
Men Amateur: Mike King
Women Amateur: Cheri Elliott
Cruiser: Jason Johnson

ABA 1985 * NATL. NO.1
AA Pro: Ronnie Anderson
Men Amateur: Robert MacPherson
Women Amateur: Cheri Elliott
Cruiser: Shawn Callihan

1983
26 inch bikes
influenced the creation
of the Cruiser class

1984
ESPN holds seven race Pro
Series (Winner: Greg Hill)

1985
BMX Hall of Fame was created
(Dave Clinton is 1st to be inducted)

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Partner #1 Name: _____   Partner #2 Name: _____

PRE EXPERIMENT:

1) Based on your understanding of the experiment, how far do you predict you will coast (in feet)?

   Partner #1: _____ feet   Partner #2: _____ fee

2) Of the three riding methods, which method do you predict will produce the greatest distance:

   sitting, standing, or bouncing? _____

DURING EXPERIMENT: What was the greatest single distance recorded for each method?

RIDING METHOD	PARTNER #1	PARTNER #2
a. Sitting	1. _____ feet 2. _____ feet 3. _____ feet	1. _____ feet 2. _____ feet 3. _____ feet
b. Standing	1. _____ feet 2. _____ feet 3. _____ feet	1. _____ feet 2. _____ feet 3. _____ feet
c. Bouncing	1. _____ feet 2. _____ feet 3. _____ feet	1. _____ feet 2. _____ feet 3. _____ feet
d. Other*	1. _____ feet 2. _____ feet 3. _____ feet	1. _____ feet 2. _____ feet 3. _____ feet

*If other, please explain your method: _____

_____

_____

Partner #1 Name: _____   Partner #2 Name: _____

POST EXPERIMENT:

1) Which method produced the greatest single distance? _____

2) Which method produced the greatest average distance? _____

3) Expanding on your answer from question #2, why do you think this method worked best? Explain using your observations from today. _____

_____

_____

_____

3) Which method produced the lowest average distance? _____

4) Was the method used to produce the single greatest distance the same method used to produce the greatest average distance? _____

If not, why do think that is? _____

_____

_____

_____

5) Using the back of this sheet, graph your findings. Add the number of feet (50 feet, 100 feet, etc.) on the Y-axis. Add the different riding methods across the X-axis. Use colors if you can. Make sure you label your axes along with your results.

6) Assuming your coast line was set at 10 feet and you coasted 90 feet, if you moved the line to 20 feet, how far do you predict you would coast? _____

Why? _____

_____

_____

_____