



SKILL-BASED ACTIVITY

Target Heart Rate

Timeframe

Beginner: N/A
Intermediate: 30–45 minutes
Advanced: 30–45 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable performance of riding in the identified heart rate zones as measured by the heart rate zone rubric. (Psychomotor).
2. Demonstrates exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards

Standard 1
Standard 2
Standard 3
Standard 4
Standard 5

Equipment

- Helmets
- Head barriers
- Bicycles
- Bicycle pump
- Cones, domes, polypots or chalk to mark riding course
- Stopwatch
- Heart rate monitors
- *Target Heart Rate* worksheet
- Pencils

Teacher Overview

This activity introduces the concept of exercise intensity as measured by the heart rate. Students will determine target heart rate zones of various intensities and then using heart rate monitors, attempt to ride within those target zones for a period of time. This activity is not recommended for beginner or adapted riders.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times while they are riding for an extended period of time.
2. Clean and prepare heart rate monitors for use.
3. Make appropriate number of copies of *Target Heart Rate* worksheet.
4. Prior to using heart rate monitors, students should have learned how to monitor heart rate by putting their fingers over either the radial or carotid artery.

Directions

1. Introduce this activity using the following prompt:

Some days we might want to go on an easy ride; other days we might want to ride harder or faster to challenge ourselves and improve our bicycling fitness level. Using a heart rate monitor can help us know just how hard we're riding. It is important to know what your maximum heart rate is. Once you know your maximum heart rate, you can calculate your desired target heart rate zone — the level at which your heart is being exercised and conditioned but not overworked. Working out within your target heart rate zone gives you the best results for burning fat and losing weight. If you work out below that zone, you reduce your exercise intensity and you may not burn as many calories. If you work out above that zone, you may not be able to work out as long as you planned.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: What is exercise intensity?

A: The amount of energy that is expended when exercising. Exercise intensity also is reflected in how hard your heart is working. Exercising at the correct intensity can help you can get the most out of your physical activity

Q: What are ways we can measure exercise intensity?

A: There are 2 ways to measure exercise intensity: (1) How you feel; how hard physical activity feels to you while you're doing it. This is often referred to as Rating of Perceived Exertion, RPE. The suggested scale is a 1-10 scale: 1 being lying in bed and 10 being, 'can't do any more' level of exertion. (2) Heart rate provides an objective look at exercise intensity; the higher the heart rate during physical activity, the higher the exercise intensity.

3. Instruct students to calculate their resting heart rate by counting the number of beats in 10 seconds and then multiply by 6.
4. Enter this number on the *Target Heart Rate* worksheet.
5. Complete the *Target Heart Rate* worksheet to identify the various zones.
6. Distribute heart rate monitors to students.
7. Check heart rate monitors to ensure they are on each student and adjusted accordingly.
8. Complete the following steps #9-16 if *Helmet Fit* and *ABC Quick Check* have not been completed as part of the current day's lesson; otherwise proceed to step #17.
9. Divide students into groups of two or three.
10. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.





It is important to consider fitness level when students are riding for a sustained amount of time. A sustained ride can be in a particular heart rate zone, if desired, but it is important for teachers to monitor students for exertion, particularly in hot and/or humid weather.

11. Instruct students to retrieve bicycles according to number assigned.
12. Instruct one student to complete the ABC Quick Check while the partner observes to ensure that the check was completed properly, and to provide prompts if an item was missed. Switch roles.
13. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.
14. Inspect helmets and instruct students to proceed on the riding course for the 'Check' of the ABC Quick Check and when finished return to the teaching station.
15. Instruct students to identify the perceived intensity and compare to the heart rate monitor reading.
16. Explain to students that they will be riding at three different intensity levels for various periods of time.
 - Light exercise intensity: 40 to 50 percent of your maximum heart rate
 - Moderate exercise intensity: 50 to 70 percent of your maximum heart rate
 - Vigorous exercise intensity: 70 to 85 percent of your maximum heart rate
17. State everyone's identified heart rate zones will differ slightly.
18. Instruct students they will be riding for seven minutes at each intensity level; move to the next level when the whistle blows:
 - 40-50% of maximum heart rate for three minutes
 - 50-70% of maximum heart rate for three minutes
 - 70-85% of maximum heart rate for one minute
19. Instruct students to return to teaching station to verify heart rates.
20. Instruct students they will be riding for five minutes at each intensity level; move to the next level when the whistle blows:
 - 50-70% of maximum heart rate for two minutes
 - 70-85% of maximum heart rate for one minute
 - 50-70% of maximum heart rate for two minutes
21. Instruct students to return to teaching station to verify heart rates.
22. Instruct students they will be riding for twelve minutes at each intensity level; move to the next level when the whistle blows:
 - 40-50% of maximum heart rate for five minutes
 - 70-85% of maximum heart rate for three minutes
 - 50-70% of maximum heart rate for three minutes
 - 40-50% of maximum heart rate for one minute

Assessment

1. Assess performance of riding in the identified heart rate zone of each student using the following rubric.

PERFORMANCE RUBRIC: RIDING IN THE TARGETED HEART RATE ZONE 

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is committed to riding safely during activity;</p> <p>Student reliably maintains a safe speed and distance, without reminders from the teacher.</p> <p>Student is able to ride continuously, according to their identified zones for the identified period of time.</p>	<p>Student is committed to riding safely during activity;</p> <p>Student maintains a safe speed and distance during activity, but may need a reminder/prompt from teacher;</p> <p>Student is able to ride the majority of the time, according to their identified zones for the identified period of time.</p>	<p>Student is somewhat committed to safe riding, particularly when a teacher prompts appropriate riding behavior;</p> <p>Student will maintain a safe speed and distance during the activity, with reminders and supervision;</p> <p>Student is able to ride some of the time, according to their identified zones for the identified period of time.</p>	<p>Student is unable to participate in the activity due to unsafe behavior;</p> <p>Student lacks control of his bike and balance, so that riding in this activity is unsafe for all involved;</p> <p>Student is unable to ride, according to their identified zones for the identified period of time.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course.
4. Instruct students to keep at least three-bicycles-lengths between each rider.

Differentiating Instruction

Best Practices

Adapted and Beginner

- Not appropriate for these riders.



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between bicyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go. When the first rider gets to the marker, the next student may start riding.

TARGET HEART RATE ZONE



Student _____ Date _____

Resting Heart Rate = _____ **Maximum Heart Rate** = $220 - \text{Age}$ _____ = _____

1. (Maximum Heart Rate – Resting Heart Rate X 0.40) + Resting Heart Rate Target Heart Zone 40%
(_____ - _____ X 0.40) + _____ = _____

2. (Maximum Heart Rate – Resting Heart Rate X 0.50) + Resting Heart Rate Target Heart Zone 50%
(_____ - _____ X 0.50) + _____ = _____

3. (Maximum Heart Rate – Resting Heart Rate X 0.70) + Resting Heart Rate Target Heart Zone 70%
(_____ - _____ X 0.70) + _____ = _____

4. (Maximum Heart Rate – Resting Heart Rate X 0.85) + Resting Heart Rate Target Heart Zone 85%
(_____ - _____ X 0.85) + _____ = _____

