SKILL-BASED ACTIVITY
Cyclometers & Cadence

Timeframe

Beginner: N/A
Intermediate: 10-15 minutes
Advanced: 10-15 minutes

Objectives

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

1. Demonstrate exceptional or reliable performance of a preferred cadence using a cyclometer of as measured by the cyclometer and cadence 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
- Cones, domes, polyspots or chalk to mark riding course
- Stopwatch
- Cyclometers
- Bicycle Trainers

Teacher Overview

This activity strengthens the understanding of cadence. Students will make adjustments to the gears on the bicycle to reach various cadences. Cyclometers are introduced as a type of equipment that enables cadence to be easily monitored.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a "chute" using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
3. If a full class set of bicycle trainers is available, set them up in the chute. Students will attach bicycles after completing the ABC Quick Check.
4. If a full set of bicycle trainers is not available, set up available trainers and extra bicycles in the chute. Groups of students will rotate through the trainers, while other students continue riding the designated course.

5. Attach and set up cyclometers to bicycles that are attached to bicycle trainers.

Directions

1. Introduce this activity using the following prompt:

   Today, we are going to talk more about using gears to maintain an identified cadence. Many bicyclists use bicycle computers called cyclometers to easily measure things such as speed, distance and cadence. We are going to use both gear ratio and the cyclometer to achieve and maintain various cadences.

2. Complete the following steps #3-9 if Helmet Fit and ABC Quick Check have not been completed as part of the current day's lesson; otherwise proceed to step #10.

3. Divide students into groups of two or three.

4. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.

5. Instruct students to retrieve bicycles according to number assigned.

6. 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.

7. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.

8. 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.

9. Explain and demonstrate skills to students in the teaching station reinforcing the following points. Riders should:
   - Adjust the bicycle trainer resistance and gear ratio to find a comfortable cadence somewhere in the range of 50-60 RPM, the preferred cadence of most recreational bicyclists, using the cyclometer.
   - Continue at this cadence for 5 minutes
   - Try to increase the cadence, without changing the gear ration or the bicycle trainer resistance, to the preferred cadence of competitive cyclists, 80-100 RPM.
   - Try to continue at this cadence for 30 seconds.
   - Change the gear ration to maintain this cadence for 1 minute.

If a full class set of bicycle trainers is available:

10. Instruct students to attach the bicycle to the bicycle trainer.

11. Instruct students to experiment with gears to feel the impact on cadence.

12. Instruct students to identify the gear ratio that provides a comfortable cadence.

If a partial set of bicycle trainers is available:

13. Divide students into groups based on the number of trainers available.

14. Instruct students to experiment with gears to feel the impact on cadence.

15. Instruct students to identify the gear ratio that provides a comfortable cadence.

16. Instruct other students to continue riding the designated course.

17. Rotate groups of students through the trainers.

Assessments

1. Assess performance of cadence using a cyclometer for each student using the following rubric.

PERFORMANCE RUBRIC: CADENCE USING A CYCLOMETER

Exceptional	Reliable	Inconsistent	Struggling/ Survival
Student has the ability to ride their bicycle on a trainer continuously at the 50-60 RPM cadence and increase the intensity to the 80-100 RPM cadence for the prescribed amount of time using the correct adjustments to the gears on the bicycle; Student can shift gears without causing the chain to fall off or to get locked up.	Student has the ability to ride their bicycle on a trainer for the most part at the 50-60 RPM cadence and increase the intensity to the 80-100 RPM cadence for the prescribed amount of time using the correct adjustments to the gears on the bicycle but may need a reminder/prompt from teacher; Student can shift gears without causing the chain to fall off or to get locked up.	Student does not have the ability to ride their bicycle on a trainer continuously at the 50-60 RPM cadence and increase the intensity to the 80-100 RPM cadence for the prescribed amount of time using the correct adjustments to the gears on the bicycle without repeated reminders/prompts from the teacher; Student cannot shift gears without occasionally causing the chain to fall off or to get locked up.	Student does not have the ability to ride their bicycle on a trainer continuously at the 50-60 RPM cadence and increase the intensity to the 80-100 RPM cadence for the prescribed amount of time using the correct adjustments to the gears on the bicycle; Student is always in the incorrect gear and needs to be told when to shift; Student is unable to shift while moving; Student often causes the chain to fall off or lock up because of poor shifting.

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

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

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

Safety

1. Follow the 2-2-2-2 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

Adapted and Beginner

- Not appropriate for these riders.

Intermediate and Advanced

- Some students may not be able to ride in a higher cadence and/or heart rate zone and/or some students may need to monitor their heart rates to keep their heart rate in the lower zone.

Best Practices

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.