



Signs Signals and Safety



Time: 30-40 minutes

Studies have demonstrated that skill-building activities are the most effective way to promote retention of bicycling safety skills. Lesson objectives set the stage for building safety skills, which are emphasized through learners' participation in class activities. This curriculum does not cover every possible scenario that a child may encounter as a bicyclist but instead addresses the basic skills needed to be a safe bicyclist. Instructors should use their discretion to break up material to accommodate their daily schedules. The Skill-Building Activity is an essential component of this curriculum and all lessons should be complemented with the reinforcement of safe bicycling behavior. More time can be spent on practicing skills if children are already familiar with the core material.

Lesson Objectives

The objective of this lesson is to teach children how to be safe when biking by being more visible, riding bikes that operate properly, knowing traffic signs and signals and understanding rules of the road.

The children will be able to:

- Know how to make themselves and their bikes more visible for safety,
- Check their bikes to see that everything is working properly,
- Identify traffic signs and signals and what they mean
- Understand the rules of the road and why cyclists must obey them.

Why This Lesson is Important

This lesson is important for helping children learn how to increase their safety whenever they ride their bikes, even though we recommend that, at this age, they ride only on sidewalks, trails, greenways or around their homes. It's important for children to begin to understand traffic signs and signals and rules of the road in preparation for eventually biking on the road themselves.

Applicable Standards of Learning



Essential Standards

<p>2.MEH.1.2: Summarize behaviors that help to avoid risks.</p> <p>PE.2.PR.4.3: Use safe practices when engaging in physical education activities with little or no prompting.</p> <p>2.TT.1.1: Use a variety of technology tools to gather data and information.</p>	<p>3.TT.1.1: Use a variety of technology tools to gather data and information.</p>
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Common Core

<p>CCSS.ELA-Literacy.SL.2.1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.</p> <p>CCSS.ELA-Literacy.L.2.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.</p> <p>CCSS.ELA-Literacy.L.2.6: Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe.</p>	<p>CCSS.ELA-Literacy.SL.3.1: Engage effectively in a range of collaborative discussions with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>CCSS.ELA-Literacy.L.2.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.</p> <p>CCSS.ELA-Literacy.L.3.6: Acquire and use accurately grade-appropriate conversational, general academic, and domain specific words and phrases, including those that signal spatial and temporal relationships.</p>
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Guidance

<p>RED.C.2.1: Identify situations from your daily life in terms of problems and solution strategies.</p> <p>EEE.SE.1.2: Illustrate personal responsibility in a variety of settings and situations.</p> <p>P.SE.1.2: Use self determination to build independence.</p>
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Signs, Signals, and Safety

Grades

2-3

Lesson 2

Signs, Signals
and Safety

Materials

- Traffic Signs and Signals (Stop Sign, Yield Sign, Railroad Crossing, Pedestrian Signal)
- Bike for performing ABC Quick Check
- Parts of the Bicycle Diagram
- Know the Signs and Signals! Bingo Squares, Cards, and Key
- Large beans, plastic chips, or other markers for Road Safety Bingo game
- Parent/Caregiver Tip Sheet
- Child Assessment and Answer Key - How Does My Bike Work?

Preparation

Obtain a bicycle for the ABC Quick Check demonstration and to use when going over the Parts of the Bicycle Diagram. Prepare the materials needed for the Road Safety Bingo Game.

Part 1 – Discussion and Demonstration

► **Time:** 15-20 minutes

1. **Be Visible**
2. **Perform an ABC Quick Check**
3. **Understand Traffic Signs & Signals**
4. **Follow the Rules**

Introduction

The instructor will...

- **Explain the term “visible” and discuss what kids should wear when riding a bike to be more visible to motorists.**
- **Demonstrate how to perform a bike check to make sure the bike is safe to ride.**
- **Review traffic signs and signals**
- **Go over basic rules to follow when bicycling.**

1. Be Visible

*The word “**visible**” means “able to be seen.” When it rain or is dark outsides, it is hard for drivers in cars to see people walking or bicycling. If you wear bright clothing, you will be easier for other people to see.*

Read the children the following short passage and have them answer questions about the importance of being visible:

Jeremy was playing at his friend Michael’s house. The boys were having so much fun shooting hoops that they didn’t realize it was starting to get dark. When Michael’s mother called him in for dinner, Jeremy threw his dark green jacket on over his T-shirt and jeans. As Jeremy was riding his bike home, he noticed that cars had their headlights on.



- What time of day is it when Jeremy rides his bike home?
- What is Jeremy wearing that day?
- Are the drivers of cars likely to see Jeremy? Why? Why not?
- What could Jeremy wear so that he is more likely to be seen?
- What else could Jeremy do to be more visible to drivers?

2. Perform an ABC Quick Check

Review the parts of the bike using the **Parts of the Bicycle Diagram** at the end of the lesson and the sample bike you have in class. (Then, go over the ABC Quick Check.) The Child Assessment at the end of this lesson focuses on terminology provided in the diagram and ABC Quick Check. It's helpful to have a bicycle in class to explain.

You should always perform the ABC Quick Check before riding your bike:

A is for Air: Check the air pressure. What is air **pressure**? Air pressure will help you determine if your bike tires are filled with the right amount of air. If a bicycle tire doesn't have enough air pressure, it is flat. You shouldn't ride a bike with a flat tire! The correct pressure is stated on the side wall of the tire. (If possible, bring a child's bike into class to show how to find the recommended air pressure.) Also, spin the wheels and make sure the tires are not worn out.'

B is for Brakes: Check to make sure coaster brakes will stop the bike by spinning the back wheel and then pedaling backwards. If the bike has hand brakes, check to see that the levers don't hit the handlebars and that the pads are clean, straight and contact the rims properly. Brake pads that contact the tire can cause a blow-out. Brake pads that go under the rim and contact the spokes can cause a crash.

C is for Cranks and Chain: Grab the pedal at the end of the crank arms and try to wiggle side to side. There should be no movement. Spin the pedals and cranks backwards to see if the chain runs smoothly over the cogs. The chain should look like metal, not rust or black gunk.

3. Understand Traffic Signs & Signals

Let's talk about traffic. Let's brainstorm what is meant by traffic.

[Instructor has kids name different kinds of traffic (e.g. cars, trucks, buses, motorcycles, trains, semi-trucks etc.) and writes them down on a flipchart.]

All of these things are traffic because they are moving vehicles. All of these examples of traffic have wheels.

How do drivers know where to drive? How do drivers avoid crashing into other vehicles?

[Instructor steers children into discussion about traffic rules and laws, which will lead into the next sections about signs and signals. Kids may want to tell stories about seeing or being in a crash so be prepared to keep the discussion focused on how to prevent crashes.]

Understand Traffic Signs

[Instructor shows Stop Sign.]

Can anyone tell me what this sign is and what it tells you to do? Great! This is a stop sign and a stop sign means to STOP. When you are at a stop sign, you must look in all directions for pedestrians and other vehicles. You must make sure it is safe before you go.

[Instructor shows Yield Sign.]

Tell me if you know what this sign means. The yield sign tells you to slow down and look for pedestrians and other vehicles. You must stop and let the pedestrians and other vehicles go first. When you do not see pedestrians or other vehicles, it is safe for you to go.

[Instructor shows Railroad Crossing Sign.]

Tell me if you know what this sign means. The railroad crossing sign means that this is a location where trains cross the road. Railroad tracks can often be uneven, so it may be dangerous to ride over them on a kid vehicle such as a scooter, tricycle, or bicycle. Some railroad crossings have a gate that closes. You should never go around a closed railroad gate. Listen very carefully and look before crossing railroad tracks to be sure that no trains are coming.

Understand Traffic Signals**[Instructor shows Traffic Signal.]**

What is a traffic signal? What colors do you see on a traffic signal? A traffic signal tells drivers what to do when they approach by using colored lights. If a driver does not understand what to do when they see a color on the traffic signal, they could crash into another vehicle.

Let's go over what each color means.

- **RED** is a warning color. It means stop.
- **YELLOW** means to look and listen for danger. Prepare to stop because the light will be turning red.
- **GREEN** means go, but look to make sure it is safe.

When you are at a red signal, you wait for the light to change to green before you can go.

[Instructor shows Pedestrian Signal.]

Often, next to a traffic signal you will see another signal. What does this signal mean? Pedestrians and others on the sidewalk obey this signal, so they know when it is safe to cross the street. Young bicyclists may also use this signal. If a person on the sidewalk does not understand or obey this signal, there could be a crash.

What does the **RED** hand mean? Red means to **STOP**. The other symbol is a walking person, and it is **WHITE**. What does this white symbol mean? When the signal changes from the **RED** hand to the **WHITE** symbol, you can go after you look in all directions to be sure it is safe. Always wait for an adult when crossing the street.

4. Follow the Rules

Now that we've talked about traffic, signals, and signs, let's talk about some basic rules that you need to follow when you ride a kid vehicle such as a scooter, tricycle, or bicycle.

What should you always wear when you ride a bike or scooter? That's right. You should always wear a helmet when you ride. Here are some other basic rules to remember:

- **Always ask an adult before you ride.** Have an adult help you put on your helmet and look over your bicycle to make sure its parts are all working.
- **Wear bright colors when riding** so others can see you.
- **Look and Listen for traffic.** Pay attention when you ride.
- **Ride on the sidewalk.** Small kids' vehicles belong on the sidewalk or on a greenway, not in the street with cars. Older kids and adults may ride in the street when they can follow the same rules that other vehicles do.
- **Don't carry things in your hands.** Your hands should be free of objects when you ride. If you have objects to carry, put them in a backpack.
- **Stop at the edge.** Treat all roadways and driveways as edges like you would if you were walking on the sidewalk. You always stop at the edge of a road or a driveway whether you are walking or biking. Check for traffic before you enter the street.

Remember, you should always ask an adult before you ride a bike or scooter. If you follow these rules you are learning how to be a good bike driver.

Part 2 - Activity

► **Time:** 15-20 minutes

Road Safety Bingo

The outcome of this activity is for children to recognize road signs that are important to bike safety and their meanings. Review these traffic signs and their meanings with children before starting the game. At the end of the first game, you can make the winner the caller.

Introduce new signage used in this game:

- Speed Limit – The maximum speed a vehicle is permitted to travel on a roadway.
 - Road Curves – Alerts drivers and bicyclists that there is a right curve ahead.
 - One Way – Identifies a street in which vehicles may only travel one direction.
 - Share the Road – Informs drivers to share the road with bicyclists.
 - Pedestrian Crossing – Alerts drivers of a pedestrian crossing ahead.
 - Bike Lane – Clearly identifies a lane on the road which is for bicycles only.
 - Bike Route – Indicates streets designated as routes for bicyclists.
 - Do Not Enter – Directs vehicles from entering a prohibited area such as a one-way street.
1. Using the materials at the end of this lesson, give each child a **Know the Signs and Signals! Bingo Squares** and a **Know the Signs and Signals! Bingo Card**.
 2. Have children color the signs the correct color. The instructor can use the **Know the Signs and Signals! Bingo Key** to assist them with this task.
 3. Have the children cut out the signs and paste them in random order on the Bingo card, one square in each square on the card.
 4. Cut out a set of **Road Safety Bingo Signs** for the teacher/caller to use during the Bingo game and use the **Road Safety Bingo Key** to keep track of which signs you have called.
 5. To start the game, pull a sign from a container, call it out and show the sign square.
 6. Have children use a Bingo chip to cover the sign if they have it.
 7. Have children call out, “Bingo!” when they have completed a horizontal, vertical or diagonal row.
 8. When a child calls, “Bingo!” have him or her explain the meaning of each sign to become the winner.

Review

► **Time:** 5 minutes

The instructor will review...

- How to be more visible when riding a bicycle,
- What to check on your bike before you ride,
- Traffic signs and signals, including those used in the Road Safety Bingo exercise,
- That a bicycle is a vehicle that must obey the rules of the road and traffic signs and signals
- Correct answers to the Child Assessment - How Does My Bike Work?



Suggestions for a Balanced Curriculum

Grades
2-3

Lesson 2

Signs, Signals
and Safety

These optional activities are included to extend the lesson into other areas of learning. Most activities presented may be completed within a 20-minute time period, or may be assigned as homework opportunities.

English Language Arts / Information and Technology

Give each child a copy of the **Parts of a Bicycle Diagram** and **“How Does My Bike Work?” Child Assessment** at the end of this lesson. Have children work in pairs to read the sentences about how a bike works and decide whether they are true or false. Allow them to use online resources, a dictionary, or a bicycle repair manual to help them understand the parts of the bicycle and what they do. Have them correct the sentences that are false by providing the correct term.

Go through the each of the parts of the bicycle with your class.

Science

The objective of this activity is to demonstrate the limitations of seeing and being seen by drivers at night. Children learn how light can be reflected and how reflection can help drivers see objects at night.

Materials:

- Construction paper triangles in white, yellow, black, and other dark colors
- Glue sticks
- Flashlight
- Reflector from bicycle, reflective tape or stickers (can be found at most hardware stores or bike shops)

Have children cut out triangle shapes. Have them create triangles using white, yellow and a few darker colored papers, pasting one triangle on each black sheet. Instructor darkens the room then flashes the flashlight quickly on all of the triangles in turn. Ask the children which triangle appeared the brightest. Which triangle could they see the longest?

Next try the same experiment with a reflector from a bicycle. (A reflective sticker or a piece of reflective tape on a sheet of black construction paper can also be used.) What differences do the children notice? **Reflection** is an effect that occurs when light hits smooth, shiny surfaces. The light changes direction and a mirror image is reflected.

Who can see the reflected light best? (The child holding the flashlight has the light reflected back at them directly.) Why?

Instructor summarizes:

It is always important to wear bright colored clothing when you ride your bike. Kids in dark colors are hard to see when it's rainy or dark outside.



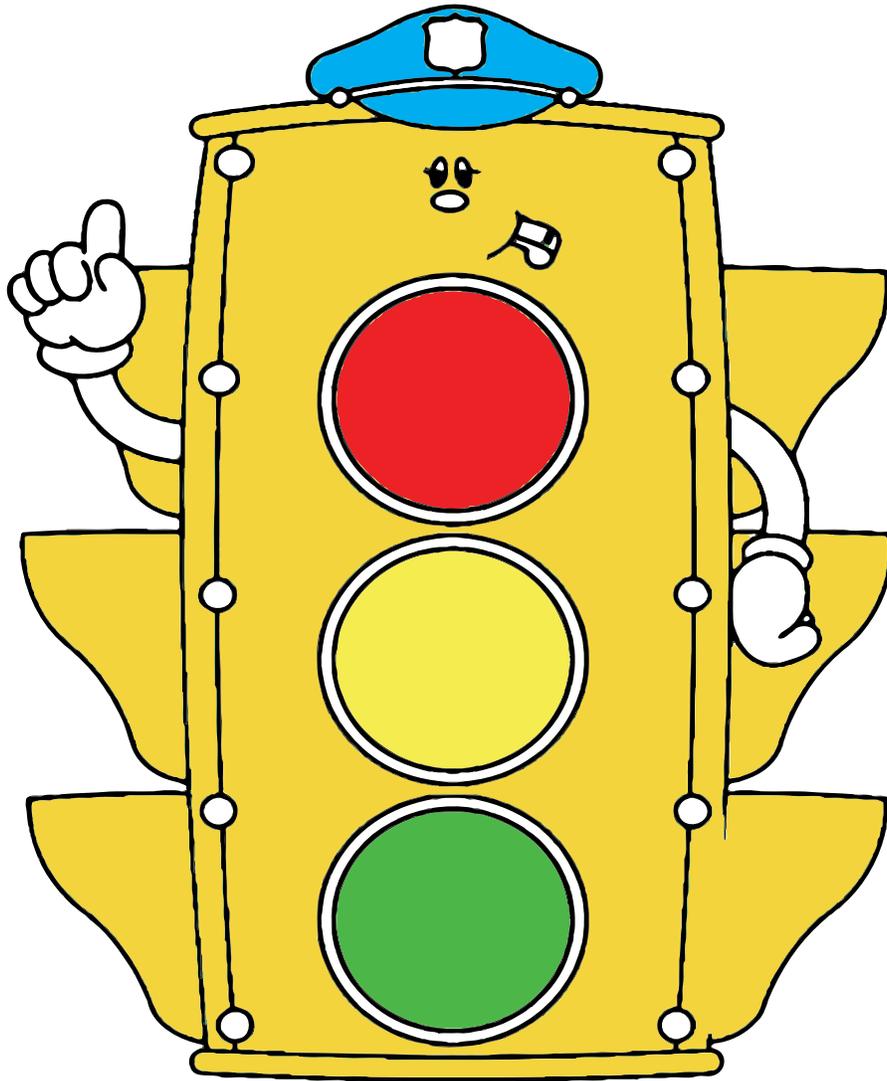
Stop Sign



Yield Sign



Railroad Crossing



Traffic Signal

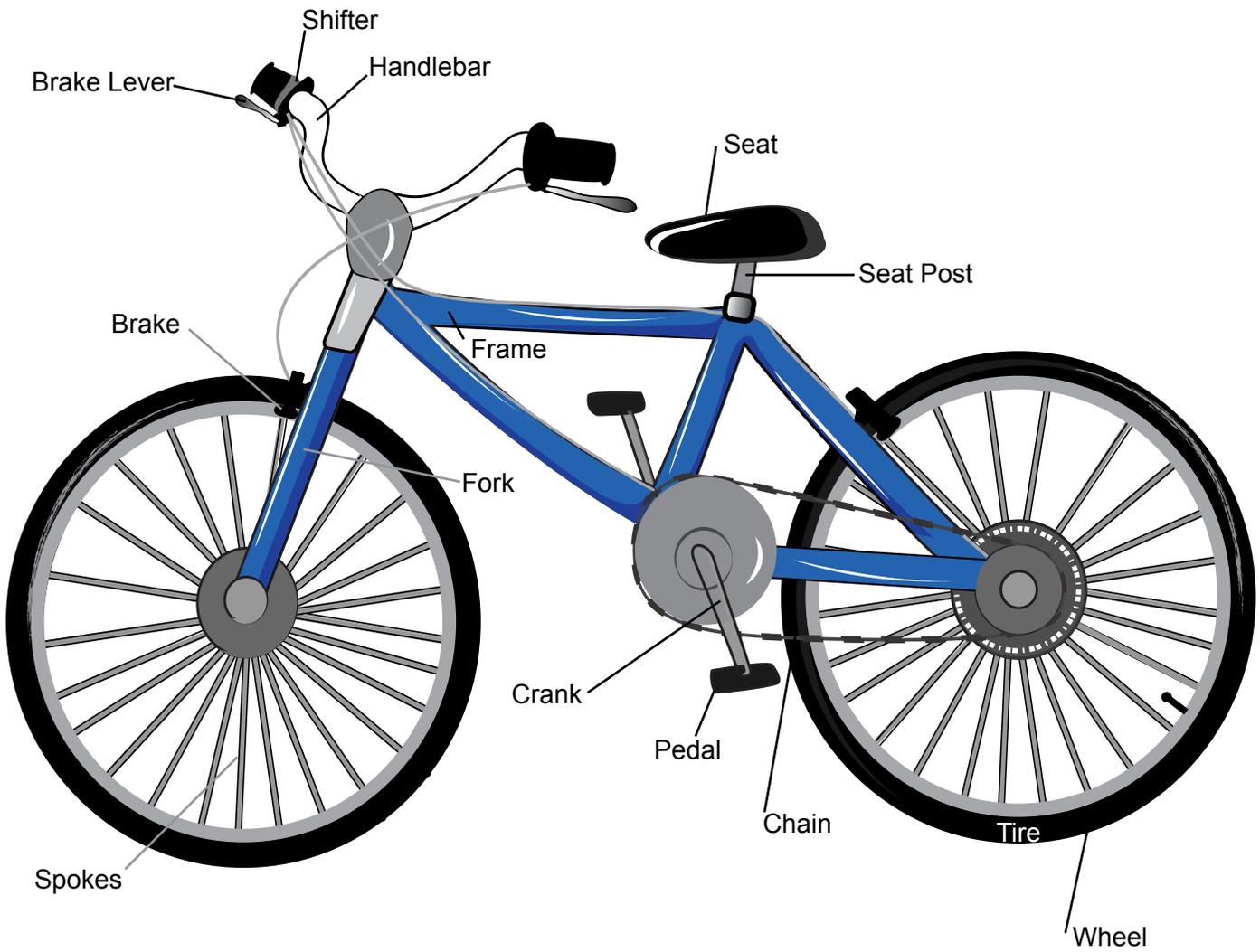
Signs & Signals



Pedestrian Signal

Diagram

Parts of the Bicycle



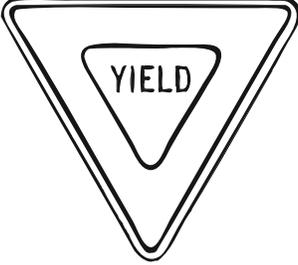
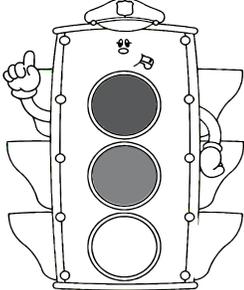
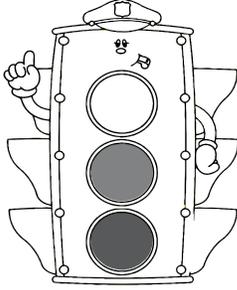
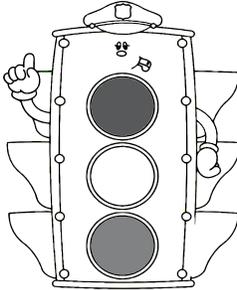
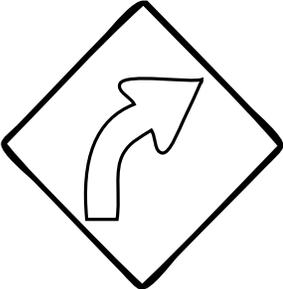
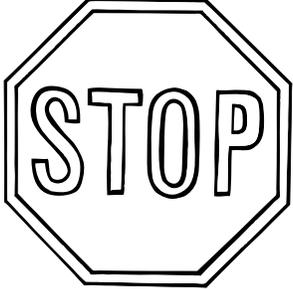
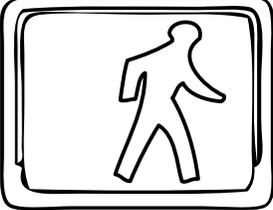
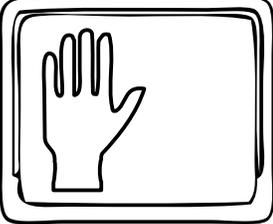
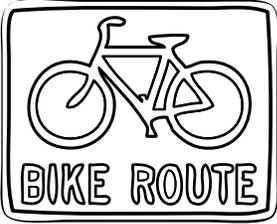


Name _____

Road Safety Bingo

Know The Signs and Signals! Bingo Squares

First, color the signs using the correct color. Then, cut out the signs and signals and adhere to the bingo card.



Name _____

Road Safety Bingo

Know The Signs and Signals! Bingo Card

Glue the colored road safety squares on to the grid below.

Road Safety Bingo Key



Know The Signs and Signals! Bingo Key

Use the chart below to assist the children with appropriate coloring.



Parent/Caregiver Tip Sheet

This week in school your child learned to bicycle safely by following the rules of the road.

First, we discussed the importance of being visible as a bike rider and demonstrated how reflective clothing and materials are safer for bicyclists than dark or other non-reflective clothing. Ask your child about the art project with construction paper and which colors were easiest to see with a flashlight.

We identified the parts of a bike, and how to perform a check on the basic functions of a bike before riding. You can help your children perform these checks on their own bikes:

- **A is for Air:** Check the air pressure, spin the wheels and make sure the tires are not worn out. The correct pressure is stated on the side wall of the tire.
- **B is for Brakes:** Check to make sure coaster brakes will stop the bike by spinning the back wheel and then pedaling backwards. If the bike has hand brakes, check to see that the levers don't hit the handlebars and that the pads are clean, straight and contact the rims properly. Brake pads that contact the tire can cause a blowout. Brake pads that go under the rim and contact the spokes can cause a crash.
- **C is for Cranks and Chain:** Grab the pedal at the end of the crank arms and try to wiggle side to side. There should be no movement. Spin the pedals and cranks backwards to see if the chain runs smoothly over the cogs. The chain should look like metal, not rust or black gunk.

We spent time reviewing road rules. We learned the meanings of some of the most frequently occurring street signs.

Overall safety guidelines that your child learned today:

- **Always ask an adult before you ride.** Have an adult help you put on your helmet and look over your bicycle to make sure its parts are all working.
- **Wear bright colors when riding** so others can see you.
- **Look and listen for traffic.** Pay attention when you ride.
- **Don't ride in the roadway.** Small kids' vehicles belong on the sidewalk or on a greenway, not in the street with cars. Older kids and adults may ride in the street when they can follow the same rules that other vehicles do.
- **Don't carry things in your hands.** Your hands should be free of objects when you ride. If you have objects to carry, put them in a backpack or basket.
- **Stop at the edge.** Treat all roadways and driveways as edges like you would if you were walking on the sidewalk. You always stop at the edge of a road or a driveway whether you are walking or biking. Check for traffic before you enter the street.





Name _____

Child Assessment

How Does My Bike Work?

Read the following sentences about how a bike works. In the left column, write if the statement is True or False. Use the diagram provided and textual clues to help you. If you have trouble, use online resources, a dictionary, or a bicycle repair manual to help you.

- _____ 1. When I push on the **spokes**, the bike stops.
- _____ 2. When I want to make it easier to move the bike up a hill, I use the **shifter** to change speeds.
- _____ 3. The **fork** of the bike holds my front **wheel** in place while I ride.
- _____ 4. When I turn the **handlebar** to the right, the front **wheel** turns to the right.
- _____ 5. When the **chain** goes around, it turns the **fork**.
- _____ 6. The **tire** is made of rubber and makes contact with the ground when I ride.
- _____ 7. To ride my bike, I sit on the **pedal** which is attached to the **frame**.
- _____ 8. The **chain** transfers powers from the **pedals** to the bicycle **wheels**.
- _____ 9. I push on the **pedals** with my feet to propel the bicycle forward.
- _____ 10. The **brake** makes contact with the **tire** to stop the bicycle.
- _____ 11. I adjust the height of the **seat**, by sliding the **seat post** up or down.
- _____ 12. If a **tire** is flat, it should be inflated to the correct **pressure** before riding.

Instructor's Question and Answer Key

How Does My Bike Work?



- FALSE 1. When I push on the **spokes**, the bike stops.
When I push on the **pedals**, the bike stops.
- TRUE 2. When I want to make it easier to move the bike up a hill, I use the **shifter** to change speeds.
- TRUE 3. The **fork** of the bike holds my front **wheel** in place while I ride.
- TRUE 4. When I turn the **handlebar** to the right, the front **wheel** turns to the right.
- FALSE 5. When the **chain** goes around, it turns the **fork**.
When the **chain** goes around, it turns the **wheel**.
- TRUE 6. The **tire** is made of rubber and makes contact with the ground when I ride.
- FALSE 7. To ride my bike, I sit on the **pedal** which is attached to the **frame**.
To ride my bike, I sit on the **saddle, or bike seat** which is attached to the **frame**.
- TRUE 8. The **chain** transfers powers from the **pedals** to the bicycle **wheels**.
- TRUE 9. I push on the **pedals** with my feet to propel the bicycle forward.
- FALSE 10. The **brake** makes contact with the **tire** to stop the bicycle.
The **brake** makes contact with the **rim** to stop the bicycle.
- TRUE 11. I adjust the height of the **seat**, by sliding the **seat post** up or down.
- TRUE 12. If a **tire** is flat, it should be inflated to the correct **pressure** before riding.