Neighborhood Navigators
Grades 6-8

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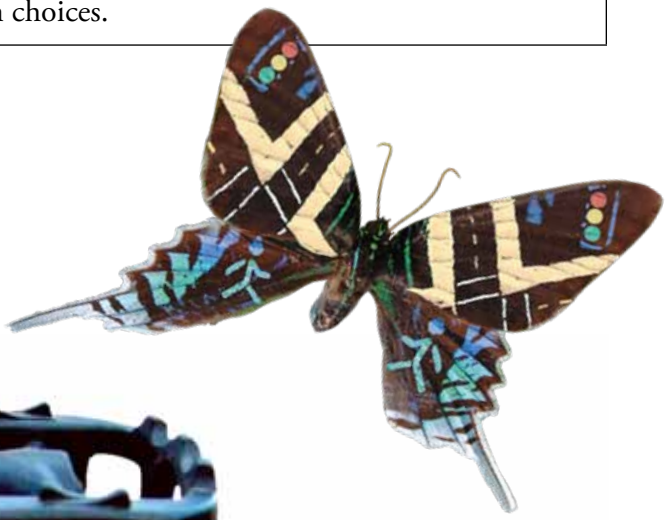
Neighborhood Navigators
Grades 6-8

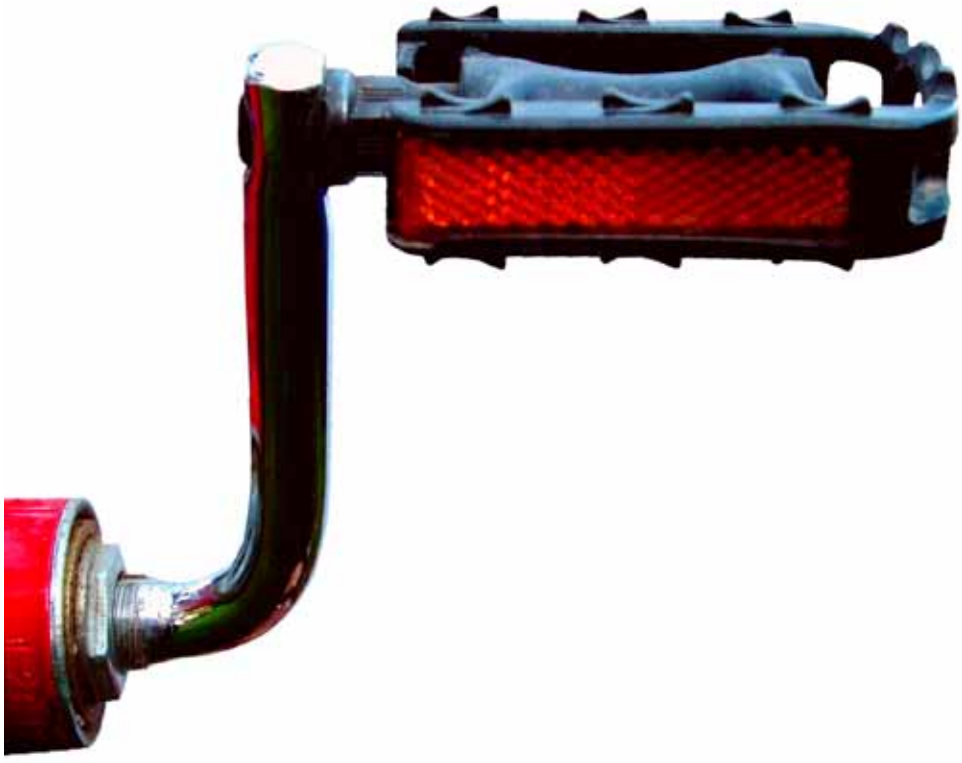
Introduction

The Grade 6-8 curriculum explores how our travel mode choices affect the environment. The following lessons examine how our history of travel affects our choices and habits today. Teachers who have pilot-tested this curriculum have expanded some lessons into two and three sessions. Please feel free to adapt to suit your and your students' needs and interests.

6-8 Lesson Summary

Lesson Title	Summary
What is Transportation	Understand the history of travel and how it affects our environment. Be able to determine how to keep safe while using different modes of transportation.
Consuming Resources	Learn about renewable and non-renewable resources that are used in everyday products and modes of transportation.
Community Design	Evaluate the safe and unsafe areas around our school and determine how things might be able to change to make the areas safer.
Habits and Environmental Impacts	Look at the habits we participate in and their impact upon the environment.
Writing Invitation	Write speech/article to defend or refute transportation choices.





Grades 6-8 Learning Objectives

Purpose

To provide students with the basic knowledge, skills and practice necessary to be safe pedestrians and to learn how our travel affects the environment, our health and overall livability in a community.

Learning Objectives

Students will be able to:

- describe different modes of transportation and how to stay safe while using them.
- identify traffic safety laws.
- understand how different modes of transportation have been used for discovery through the years.
- understand the difference between renewable and non-renewable resources.
- begin to understand how the built environment can influence travel.
- demonstrate safe travel for self and people with a variety of needs.
- identify ways to reduce risk of injuries while traveling to and from school and in the community.
- be able to analyze safe and unsafe crossings and suggest ways to make them safer.
- begin to understand the environmental impacts of individual transportation habits.
- understand how transportation choices affect land use, lifestyle and the environment - and vice versa.
- consider options when designing an ideal community.
- be able to defend or refute the rationale for a certain land use choice.

Grades 6-8 Benchmark Standards:

Health

HE.08.IP.01 Explain ways to reduce risk of injuries while traveling to and from school and in the community.

HE.08.IP.02 Identify rules and laws intended to prevent injuries.

HE.08.IP.03 Demonstrate personal responsibility to follow safety related rules.

HE.08.HS.01 Access home, school and community resources to meet specific health and safety needs.

Physical Education

PE.08.SM.01 Apply rules, procedures, and etiquette that are safe and effective for specific activities/situations.

Social Science

SS.08.HS.01 Represent and interpret data and chronological relationships from history, using timelines and narratives.

SS.08.HS.03 Identify and give examples of chronological patterns and recognize them in related events over time.

SS.08.GE.07 Understand how human modification of the physical environment in a place affects both that place and other places.

SS.08.GE.08 Understand how changes in a physical environment affect human activity.

SS.08.GE.08.03 Predict how changes in an ecosystem (not caused by human activity) might influence human activity.

Science

SC.08.ES.01 Recognize that Earth materials are limited, and explore strategies for addressing this problem.

SC.08.ES.01.01 Identify ways in which various resources can be recycled and reused.

English

EL.08.SL.01 Develop a focus and present information to achieve particular purposes by matching the message, vocabulary, voice modulation, expression, and tone to the audience and purpose.

Lesson 1:
What is Transportation?

Objectives

Students will be able to:

1. share different modes of transportation and how to stay safe while using them.
2. identify traffic safety laws.
3. understand how different modes of transportation have been used for discovery through the years.

Materials

- ☐ Student workbooks
- ☐ Paper for each student
- ☐ Tape
- ☐ Overheads of examples of areas where several road users interact (see Appendix A for examples or use local pictures)
- ☐ List of "Traffic Safety Laws and Guidelines" (Appendix B)
- ☐ Pictures of different modes of transportation (Appendix C)

Advance Preparation

Draw a timeline on the board.

8000 BC — present

Vocabulary

transportation - 1) a means or system of transporting, moving from one place to another; 2) the act of transporting or the state of being transported

transportation system - all modes of transportation efficiently working together

Activities

Introduce the curriculum by asking students to draw or write the name of a mode of transportation on a piece of paper. Some examples include:

- a person walking
- cars
- trains
- airplanes
- scooters
- skateboards
- buses, etc.

Be sure to cover all the transportation modes and vehicles that your class suggests.

Write the words "Transportation System" on an overhead or chalkboard. Starting with "System," brainstorm what a system is (an established or organized procedure) and examples of a system (the cafeteria line to get lunch, procedure to hand in assignments to be graded). Explain that transportation system is defined as *all modes of transportation efficiently working together.* Show on the overhead the examples of transportation systems: an intersection or a crosswalk are simple examples of systems where people move from one side of the intersection to another in a safe and efficient manner. (See Appendix A for other examples.)

Ask students what might be required for safe transportation systems and write these on an overhead or chalkboard. Some examples may include traffic laws, signals, clearance of trees for visibility, minimum modes of transportation at one time (such as a bike lane), safety equipment, etc. What might happen if one or more participants in the system did not follow the laws, rules and procedures of the system?

Have students turn to the Transportation Grid in their workbooks (page 2). Have students fill in modes from the students' choices in the initial activity and discuss the environmental impact as well as how to keep safe while using that mode.

Sample Transportation Grid

Transportation Mode	What type of energy does it use?	How does it affect the environment (air, water, land)? (maybe a rating scale and students have to rate it?)	How can you stay safe while using this mode?
Airplane	Gas	Gas pollutes the air.	Keep seatbelt on when seated. Follow directions from flight attendants.
Skateboarding	Food energy	It doesn't pollute our air and water but causes some wear and tear on the streets. (Note: Discussion should center on skateboarding as mode of transportation. Manufacture of skateboards is another discussion entirely.)	You should wear a helmet and elbow/ knee pads.

Transportation throughout History

On a chalkboard, or on pieces of paper taped on the wall, write from left to right, years starting at 1600 A.D. or other dates, depending on individual choice and subsequent prompt.

Have students take the mode of transportation they wrote down or drew at the beginning of class and take a piece of tape and tape their mode/vehicle on the year that they think the mode was invented.

Go through and adjust any modes that were put up during the time-frame. Here is a grid to help you determine the mode of transportation and date of invention:

Transportation Mode	Date
Boat	Noah's Ark
The Wheel (cart)	8000 BC
Ferry	First ferry line in 1642 between Manhattan and Brooklyn
Hot Air Balloon	1750's
Bicycle	1816
Train	1822
Car	1855
Motorcycle	1867
Airplane	1903
Scooter	1923
Skateboard	1940's

Walk Discuss what this neighborhood may have looked like at various times throughout history.

Discuss how the drop off and pick-up area (and its related system) works. Is it safe? How do walkers/ bikers feel when interacting with the drop off and pick up system?

Ask students why people participate in certain modes of transportation. Include needs, wants, innovations, etc. Some examples may include exercise, cost, efficiency, speed, landscape/views, etc. Go through as many as you would like on the timeline.

Extension Activity

Discuss or define the difference between a law, policy and guideline.

Law: (***http://dictionary.reference.com/browse/law***)
the principles and regulations established in a community by some authority and applicable to its people, whether in the form of legislation or of custom and policies recognized and enforced by judicial decision

Example: ORS 814.040 Failure to yield to vehicle; penalty. (1) A pedestrian commits the offense of pedestrian failure to yield to a vehicle if the pedestrian does any of the following: (a) Suddenly leaves a curb or other place of safety and moves into the path of a vehicle that is so close as to constitute an immediate hazard. (b) Fails to yield the right of way to a vehicle upon a roadway when the pedestrian is crossing the roadway at any point other than within a marked crosswalk or an unmarked crosswalk at an intersection. (c) Except as otherwise provided under the vehicle code, fails to yield the right of way to all vehicles upon the roadway. (2) The offense described in this section, pedestrian failure to yield to a vehicle, is a Class D traffic violation. [1983 c.338 §555; 1995 c.383 §84]

Policy: (***http://dictionary.reference.com/browse/policy***)
a definite course of action adopted for the sake of expediency, facility, etc. For example, when the school puts in place a new policy, such as requiring students to walk along the left hand side of the hall when walking to the cafeteria.

Guideline: (***http://www.yourdictionary.com/guideline***)
a standard or principle by which to make a judgment or determine a policy or course of action, a "rule of thumb"

Have students get into teams of four. Assign each team one law, policy or guideline (Appendix B). Have them read it and answer the following questions:

- What does this law, policy or guideline have to do with people your age?
- If people were following this law, policy or guideline, what would it look like?
- If people weren't following this law, policy or guideline what would it look like?

Have students share their law, policy or guideline with to the class and the answers to the questions.

Have students develop a poster teaching younger students about the different modes of transportation.

Teacher Reflection/Class Evaluation

- ☐ Did students participate in all activities (i.e., draw a mode of transportation, review a law/policy, fill out their transportation grid)?

Lesson 2:
Consuming Resources

Objectives

Students will be able to:

1. understand the difference between renewable and non-renewable resources.

Materials

- ☐ Student workbooks
- ☐ "A Day in the Life of a Drop of Water" (Appendix C) *http://www.catskillcenter.org/programs/edu/csp/H20/Lesson1/daylife2.htm*
- ☐ Overhead of Cheese Sandwich Bubble Map (Appendix D1)
- ☐ Bubble Map (Appendix D2)

Advance Preparation

None

Vocabulary

Renewable resource: A natural resource qualifies as a renewable resource if it is replenished by natural processes at a rate comparable or faster than its rate of consumption by humans or other users. Solar radiation, tides, winds and hydro energy are perpetual resources that are in no danger of being used in excess of their long-term availability. The term also has the connotation of sustainability of the handling of waste products by the natural environment. ***http://en.wikipedia.org/wiki/Renewable_resource***

Non-renewable resource: Natural resource, such as coal, oil, or natural gas, that takes millions of years to form naturally and therefore cannot be replaced once it is consumed; it will eventually be used up. The main energy sources used by humans are non-renewable. ***http://en.wikipedia.org/wiki/Nonrenewable_resource***

Activities

Have students take out their Transportation Grid from Lesson 1 in their workbooks. Ask students if there are any other modes they have thought of since the previous lesson. Give students time to finish the grid if necessary.

Have students look at the words "renewable" and "non-renewable" in their notebooks. Ask them to try and write a definition for the terms. After a few minutes, discuss and reach consensus on what the definitions of renewable and non-renewable resources are.

Then, on an overhead, brainstorm a list of renewable and non-renewable resources. Some examples include:

Renewable Resources	Non-renewable Resources
Solar Energy	Gasoline
Wind	Coal
Tides	Diesel

Discuss with students how some resources are used and discarded. See Attachment A, "A Day in the Life of a Drop of Water," Appendix C (workbook, page 3).

Ask students to look at the renewable and non-renewable resources list and their Transportation Grid, and decide how do the modes of transportation run on renewable or non-renewable resources? Put an "R" next to those that are renewable and an "NR" next to those that are non-renewable.

Select an everyday product and brainstorm what goes into making it, using it, and disposing of it. You may want to research your product on the Internet. Using a pencil as an example, the classroom discussion would focus on the transportation systems necessary to get all the pencil components in one spot to assemble, ship to the seller, purchase and transport home.

Q. What materials go into making a pencil? ***http://www.ehow.com/how-does_4924123_how-pencil-made.html***

A. Graphite, clay, water, wood, paint, metal, and rubber.

Q. Where does graphite come from?

A. Graphite may come from Pargas, Finland; Naples, Italy; and the Francon Quarry near Quebec. Graphite is also found in smaller quantities throughout the United States, including parts of New Jersey, New York, Arizona and Colorado. (***http://www.ehow.com/how-does_4913720_does-graphite-come.html***).

Q. How does graphite get to the pencil plant?

A. Depending on where the graphite mine is located, it may be shipped by container ship, truck and/or train.

Examples of other lines of questioning that may be pursued:

Q. What is the transportation mode used to transport the materials to the plants?

Q. How does the pencil get from the manufacturer to the store for you to buy?

Q. How do you get to the store to buy the pencil, and how do you go home with the pencil?

Q. Are there other modes of transportation you can use in order to go to the store to purchase the pencil?

Have students discuss the natural resources they consume when they buy a pencil, book, or many other things. Continuing with the example of the pencil: "When we buy pencils, we buy everything that went into getting all the parts of the pencil to the plant to be assembled and getting the pencil to us for purchase. We buy the effort of digging the graphite from the ground, and the energy that goes into growing, harvesting and shipping the trees for the wood. We buy the transportation of pencils to stores and the environmental impact from the process."

Bubble Map Transportation Modes

Split students into groups of four or five. Ask students to turn to the example of the Bubble Map of a Cheese Sandwich in their workbook (page 5); discuss the components that go into the cheese sandwich and how to use this information to make a bubble map. Assign each group two transportation modes - include walking. Have the students develop a bubble map brainstorming what might go into each mode: list the parts of the mode, manufacturing, shipping, operating, disposing/ throwing it out. Have students fill the bubble map template, Appendix D (workbook, page 6). Some might want to access the library or internet for this project.

Give students time to work on this bubble map and if time permits, to present to the class.

Walk

Walk through the neighborhood and identify types of transportation modes and talk about what goes into making these modes possible. What by-products are produced? How could we reduce these by-products? During the walk discuss the observed adherence to laws, rules, and guidelines for efficiency and safety.

Teacher Reflection/Class Evaluation

- ☐ Did students try and define renewable and non-renewable resources?
- ☐ Did students develop a bubble map in groups?

Lesson 3:
Community Design

Objectives

Students will be able to:

1. understand how the built environment can influence travel.
2. demonstrate safe travel for self and people with a variety of needs.
3. identify ways to reduce risk of injuries while traveling to and from school and in the community.
4. be able to analyze safe and unsafe crossings and suggest ways to change them to make them safer.
5. understand how and why people alter the physical environment.

Materials

Student workbooks

Optional Resource

http://www.saferoutesinfo.org/resources/education_bikeability-checklist.cfm

Advance Preparation

None

Vocabulary

engineer - a designer or builder

walkability - capable of or suitable for being walked

bikeability - capable of or suitable of being biked

Activities

First, with the class, go over the terms in their workbook (page 7): engineer, walkability and bikeability.

Review a bubble map from the prior lesson. Ask students, "Did you learn anything new about a certain transportation mode that you didn't know before? Was there a transportation mode that used more energy than you thought it did?"

Explain to the class that they are going to walk outside and observe the traffic around the school in order to determine the areas around school that are safe and unsafe.

Ask the class, "What questions might we ask?" See Community Design section (workbook, page 7). You may use these questions or the Walkability Checklist (workbook, page 9). You may also wish to use the Bikeability Checklist web link at the following address: ***http://www.saferoutesinfo.org/resources/education_bikeability-checklist.cfm***

- Is the student drop-off and pick-up area at school safe?
- Are there stop signs and slow signs around the school?
- Are there safe places for students to cross the street?
- Is the school supporting Walkability? Bikeability?
- Is it accessible for people with disabilities?

Go outside and observe. Have students write their answers while outside.

Back in the classroom, students are to create "A Habitat for Healthy Habits!" (workbook, page 10).

Students are to create a map of a perfect neighborhood using the following set-up:

As a member of the student engineering team that has been studying ways to improve the walk- and bike-ability of our school neighborhood, you have been invited to join a community group to share what you've learned. This new group is planning a new, safe neighborhood with the following goals:

- ☐ Includes homes, schools and parks
- ☐ Encourages walking, biking and other physical activities
- ☐ Decreases use of cars and gasoline
- ☐ Includes at least three traffic safety features for pedestrians and cyclists

Give students time to create the map. This may be done individually or in small work groups.

Alternative: Develop a map of the school grounds; include adjacent streets, parks and other pertinent features. Have students use black ink to show existing travel patterns and in red ink outline what could be improved.

Task	Yes or No
Is there a school, library and or park included in the map?	
Are there roads?	
Are there at least three safety laws recorded?	
Is there is a name of the neighborhood listed?	
Are there people safely crossing the street and walking around the neighborhood?	

Walk

(Assignment to be done at home) Walk a four to ten block circuit. Draw a map and identify existing travel patterns in one color and in another color outline what could be improved.

Teacher Reflection/Class Evaluation

- ☐ Did students walk safely outside?
- ☐ Were students able to do the safety check to determine how safe their school community is?

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Lesson 4:
Habits and Environmental Impact

Objectives

Students will be able to:

1. understand the environmental impacts of individual transportation habits.
2. understand the technological changes that have been made to transportation that both improve and harm the environment and our society.

Materials

☐ Student workbooks

Advance Preparation

None

Vocabulary

engineer - a designer or builder

habit - an acquired pattern of behavior that often occurs automatically

Activities

Travel Habits

Ask students, "What is a habit?" Share examples of habits – see below, on board or overhead.

Examples of Habits:

- Driving everywhere
- Brushing teeth before bed
- Always wearing a seatbelt
- Nail biting
- Not signaling before turning into the driveway
- Chewing the end of a pencil

Ask students why people participate in certain modes of transportation. Include needs, wants, innovations, etc. Some examples may include exercise, cost, efficiency, speed, landscape/views, etc. Ask students how many of these modes of transportation are used as habit? For example, you always walk to school; therefore walking is a healthy habit. Or do you always drive to the grocery store? Why? Could you use another transportation mode to achieve the same objective? Go through as many as you would like on the timeline from Lesson 1.

Have students open their workbook (page 11) and write down 10 habits they have as they function throughout the day. Add two columns at the side: one labeled "Healthy for Me," the other labeled "Harmful to Environment."

Students then rate their habits from **1-5** in the "Harmful" column, with **5** being really harmful for the environment and **1** not harmful at all. Have them rate in the "Healthy" column on a scale from **1-5** how healthy the habit is to their physical, social and mental health, with **5** being unhealthy and **1** being healthy.

Have some students share their lists.

Have students brainstorm a variety of human activities and habits that affect the atmosphere or our world in a negative way. Some answers may include smoke from fires, exhaust from cars. Refer back to their transportation grid from Lesson 1. Have students look at the modes of transportation and how they affect the environment. Discuss.

Briefly review the "perfect neighborhood" the students created for the "A Habitat for Healthy Habits!" exercise in Lesson 3. Remind them of the elements they included that made up their ideal neighborhoods (has homes, schools, parks, encourages walking and biking, lower use of cars and gasoline, has safety features for walking and biking).

Have students select at least one habit that was identified today. The students are to develop a commercial for a friend, family member, or someone in the community, that demonstrates the impact the identified habit has on the environment. If the selected habit has a negative impact, the student should explain or show what can be done to lessen the environmental impact of the habit. If the habit has a positive impact, the project should celebrate how the habit positively affects the environment and encourage continuation and/ or promotion.

For example, you may choose to create a commercial, with a parent as the target audience, encouraging carpooling to work. Included in the commercial would be information on the positive impact s carpooling has on the environment (less vehicles on

the road, less gas consumption, less cars in parking lots) and in personal benefits (saving time, spending time with friends).

Or, you may choose to create a commercial that identifies the reasons for a brother or sister to walk or ride a bicycle to school rather than being driven to school in the family car (walking and biking benefit the environment and one's personal health).

As students develop their commercials, be sure to include the following:

Task	Yes or No
Does the habit have positive or negative impacts on the environment? Did you state two things people can do to change their behavior?	
Does the habit have positive or negative health impacts?	
List three reasons why what you are advocating for is a good choice for personal health.	
List three reasons why changing behavior is good for the environment.	
Was the commercial appropriate for a chosen target audience?	

Walk Walk around school neighborhood or other area, preferably with lots of people. Have students write/ draw examples of people doing everyday things. Are these habits? Are they healthful or not?

Lesson 5:
Writing Invitation

Objectives

Students will be able to:

1. understand how transportation choices affect land use, lifestyle and the environment - and vice versa.
2. consider options when designing ideal community.
3. be able to defend or refute the rationale for a certain land use choice.

Materials

- ☐ Student workbooks
- ☐ Maps of local school neighborhood (Google maps work!)
- ☐ Map designed in Lesson 3

Advance Preparation

None

Activities

It is time to pull together what has been learned in the previous lessons. Have the students work in small groups and look at their community as a whole to consider how different modes of transportation impact the community's environment and livability.

Students are to write a persuasive letter or speech, using the "Writing Invitation" (workbook, page 14). The students are to convince their audience to adopt and implement suggested changes to improve the walkability and bikeability of their school.

They are to include the following:

- the purpose of the letter or speech;
- three suggested changes and the reasons behind them;
- three ways these changes will have a positive impact on personal health, school safety, natural resources and the environment.

Pictures, graphs, and sample statements from community members are encouraged.

Persuasive Writing Check Sheet

Introduction

- Does the author include an introduction?
- Does the first paragraph clearly state the author's opinion?
- Is the introduction inviting and/or create interest?

Concede to the other side

- Does the author concede to the other side?
- Does the author show s/he understands the other side?
- Does the author state one or two opposing arguments?

Restate opinion and support with details and facts

- Does the author restate his/her opinion in the first sentence?
- Does the author use many supporting details and facts?
- Does the author cite sources for facts? (if applicable)
- Are the arguments and facts convincing?
- Are the arguments and facts organized and easy to understand?

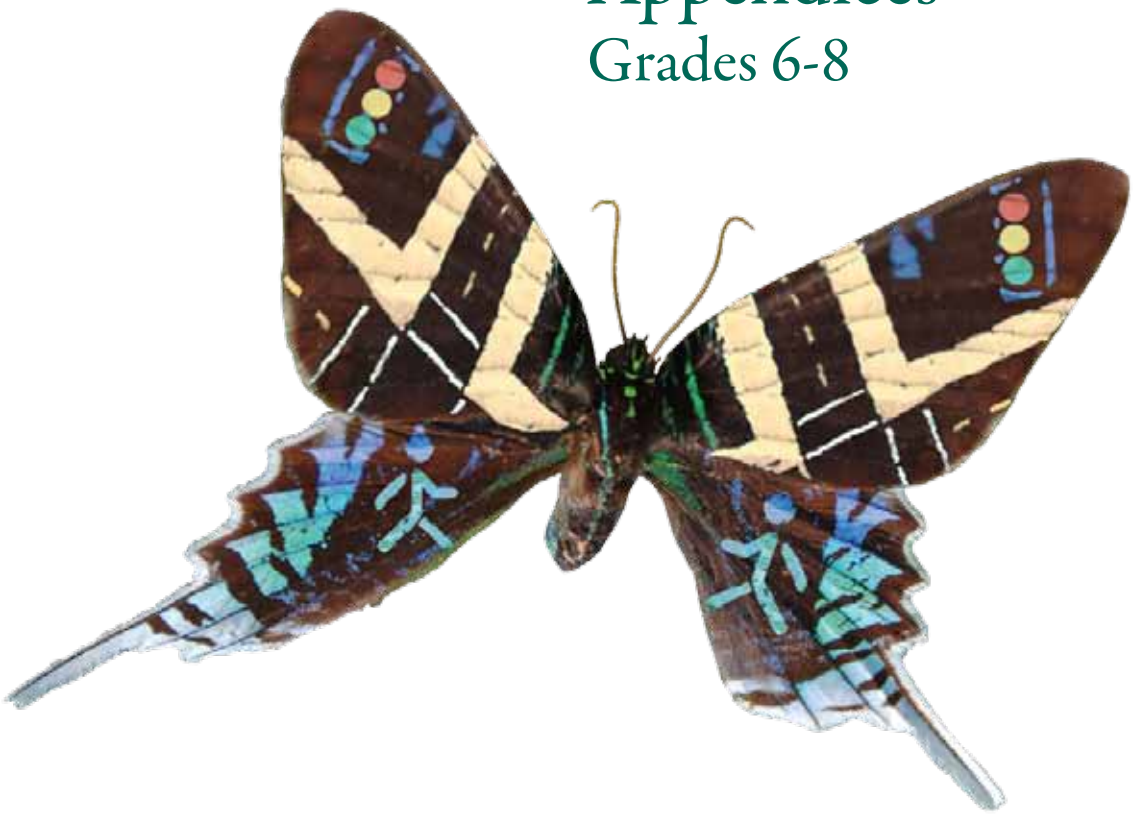
Offering a solution

- Does the author present a solution to the problem?
- Is the solution presented thoroughly?
- Is the solution practical?

Conclusion

- Does the author include a conclusion?
- Does the conclusion restate the author's opinion in another way?
- Does the conclusion leave the reader with something to think about?
- Is the conclusion interesting and/or powerful?

Appendices
Grades 6-8



Appendix A

Intersections

Appendix B

Traffic Safety Laws and Guidelines

Walking and biking are a fantastic way to get to school and get around town. With so many different kinds of wheels using the roads we need to have a few rules to keep us all safe and happy when we use the streets and sidewalks. Here are a few to think about. Discussing these with your family around the table would be great dinner conversation!

Pedestrian Safety Rules

1. Cross the street at the corner or at a crosswalk if there is one, and obey all traffic signals.
2. Walk on a sidewalk; if there is no sidewalk, walk on the left side of the street, facing oncoming traffic.
3. It is best to walk with a responsible adult.
4. Only cross in front of a school bus when the driver says it is safe. Do not cross behind the bus or where the driver can't see you.
5. Look left, right and left again before you cross and keep looking both ways until you reach the other side.
6. If there is traffic, make eye contact with the driver(s) so they see you and understand your intention. Make sure they are at a full stop before you start to cross.
7. Watch out for cars that are turning or backing up out of parking spaces or driveways.
8. If you walk when it is dark, wear light-colored clothing or clothing with reflective material so drivers can see you. A flashlight is also a good idea.
9. Never run into a street without stopping and practicing your safe pedestrian skills.
10. Walk carefully and take short steps when pavement is wet or icy.

Bicycle Safety Rules

1. Always wear a properly fitted and certified helmet.
2. When entering a sidewalk, path or driveway, stop and look to make sure it's clear and safe to proceed.
3. If crossing the street, walk your bike across the crosswalk. For older or more experienced riders, learn to make vehicular-style left hand turns.
4. Cross only at the street corner.
5. When riding in the street, obey all traffic signals and laws.
6. Ride with the traffic flow, not against it.
7. Always stop at stop signs and stop lights.
8. Use the correct hand signals when turning to let drivers know your intent.

Tips to Motorists when Driving around Bicyclists

With so many cyclists on the streets these days, many parents of students receiving bike safety education in school have asked for some tips for driving their vehicles around bicyclists. We hope the following list is useful. For more information on laws and good practices for bicyclists, you can request the Oregon Bicyclist Manual from the Oregon Department of Transportation.

- ☐ Check the bike lane. When turning right across a bike lane, always look behind you and in your passenger sideview mirror for bicyclists; bikes can travel fast enough to catch up with you even if you passed them more than a block earlier. If a bicyclist is approaching, wait and yield rather than trying to "beat" them. Think of the bike lane like a train track – never sit and idle on it – don't start across until you know you can clear it.
- ☐ Pass with ample room. Except over a double yellow line, you can cross the center line to pass a bicyclist safely as long as oncoming traffic is clear. Passing closely, especially when traveling over 25 mph, is very scary for the bicyclist.
- ☐ Don't honk to communicate with bicyclists unless there's an emergency. If your horn sounds loud from inside your car, imagine how loud and shocking it is from just in front of it.
- ☐ Do communicate with bicyclists using eye contact and turn signals.
- ☐ Don't follow closely. This is scary and intimidating. Bicyclists prefer to be out of your way as soon as possible but often need to be in the lane for some reason.
- ☐ Allow bicyclists to use crosswalks. This is allowed, and some timid bicyclists rely on them for safe crossings.
- ☐ Be cautious in residential neighborhoods. Bicyclists like to use quiet streets to get around, so if you are sloppy or impatient at stop signs you risk hitting someone on a silent or vulnerable vehicle. It is really important to slow and stop before stop signs, rather than after, and then ease into the intersection to see if cross traffic is clear. Children riding bikes or running on the sidewalk may not see you and if you aren't slowing down before they cross the street, you could run them over.
- ☐ Look for bicyclists before opening your door. When parking on the street, make sure you're not opening your car door into the path of a bicyclist.
- ☐ Use good manners. Apologize if you make a mistake and it will go a long way. Eye contact and waves are very humanizing, especially in the stress of rush-hour traffic.
- ☐ Give children extra space. Children on bicycles are often more wobbly than adults, and more likely to turn or stop suddenly without looking or signaling. It is best not to pass a child on a bicycle unless you have many feet of space and proceed extremely slowly.

Appendix C

A Day in the Life of a Drop of Water

(Source: Expanded from "Birth of a Raindrop", from Keepers of the Earth, by Michael Caduto and Joseph Bruchac)

You are a small drop of water sitting on top of a fresh blade of green grass. It is mid-summer and the sun is shining. You are wondering, "Will I ever become unstuck from this blade of grass?"

A playful summer breeze blows through the meadow, causing your blade of grass to wave back and forth. The sun feels very strong and you feel yourself becoming more and more full of energy. You feel so hot and alive that your insides are rushing around violently. Suddenly the energy is so great that you are lifted right up into the sky! Your body feels a whole new sensation... you are light, dry and flying! Your insides are still moving around furiously. The wind helps to carry you up and over the treetops.

As you rise higher and higher you feel light as a feather. Down below, the meadow that you came from looks like a dot on the Earth. The wind carries you into a dark gray cloud. You hear a loud cry and almost bump into a large, black bird with a white head. Here in the cloud there are millions and millions of other water vapor molecules rushing around and bumping into each other. "Hey, watch it!" you yell, as one of them bumps into you. "Ouch! It's too crowded here!"

You are relieved when you begin to feel that familiar moisture feeling again. As you become wetter, you feel heavier, and you move much more slowly. Soon you become so heavy that you start to fall back to Earth. All around you other raindrops are falling. Lower and lower you sink. In every direction you look, there are raindrops. The whole world seems to be wet.

You look down again and the wet blur is becoming clearer. A long, black highway stretches below you, running beside a large expanse of evergreen forest. You hope to land on the forest! As the end of your fall draws near, you close your eyes, bracing yourself for the impact... SPLAT! OUCH! Was it the highway asphalt? But your movement doesn't stop. You just move much more slowly. As you open your eyes, you are trickling down the crack of a huge boulder on the edge of the forest. A few other raindrops have stuck onto you and you're all flowing together. More and more drops collide and join your blob, running down the rock. Your speed picks up, and then finally.... ttthump! You all have landed on the soft earth. The impact was more gentle this time but it has broken the blob apart.

Once again you are alone and suddenly it is very dark... oops... one droplet friend has attached to you as you find yourself slowly creeping into a strangely-shaped crevice between two fuzzy particles of soil. You feel yourself being pulled down, down, into crevice after crevice.... like little tunnels in the soil. Slowly twisting, turning, percolating, the musty smell of the soft, damp, cool earth comforts you. The softness is disappearing, though, as you go further down and the soil particles are getting harder and bigger with larger crevices that you flow through not quite so slowly now.

More of your droplet friends join you. You all notice that you now seem to be pulled sideways instead of down. A strange force is somewhere off to your right and you're getting sucked toward it, but you all still have to find your way through the twisting cave-like spaces between the grains of

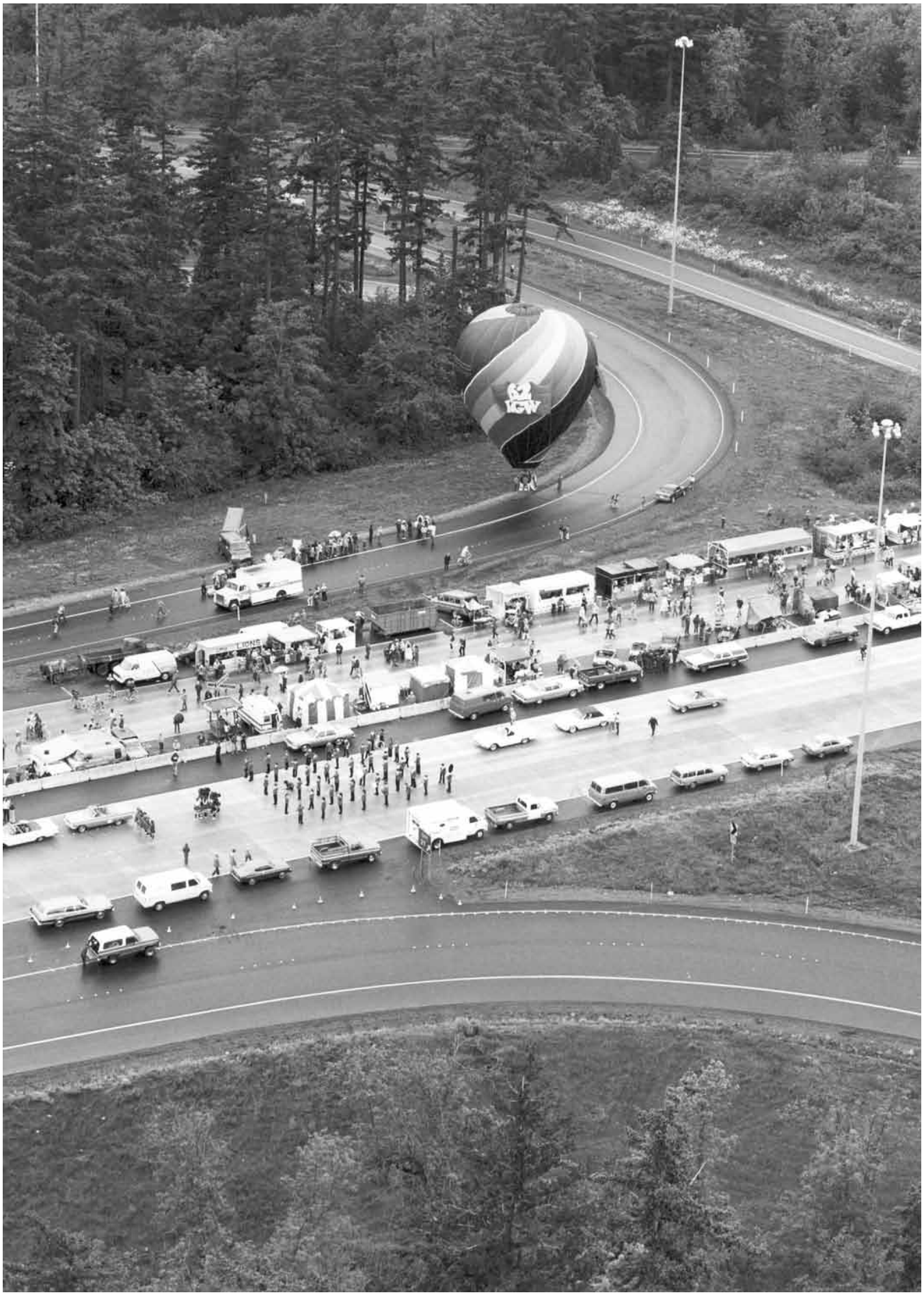
sand and gravel... the force becomes so strong that you get pulled... fffftttt! Splash! Into a huge hole filled with thousands... millions... of your water drop friends... You're all swishing and splashing about... but you can still feel the strange force sucking you... it is much stronger now, and upwards. It is still very, very dark... suddenly you hear a strange echoing sound... all your droplet friends splashing against metal... there is a faint smell of rust now. The force is still pulling you up, when suddenly...

OUCH! Your head hits a hard metal wall and you get pulled sideways again, this time to your left. Faster and faster you travel... OUCH! Your left side hits another metal wall and the force pulls you straight up again. Now you are traveling as fast as you were the last time you saw the light of day... rolling down that boulder on the edge of the forest. But it is still dark and so it is pretty scary to be going so fast and not see where you are going...

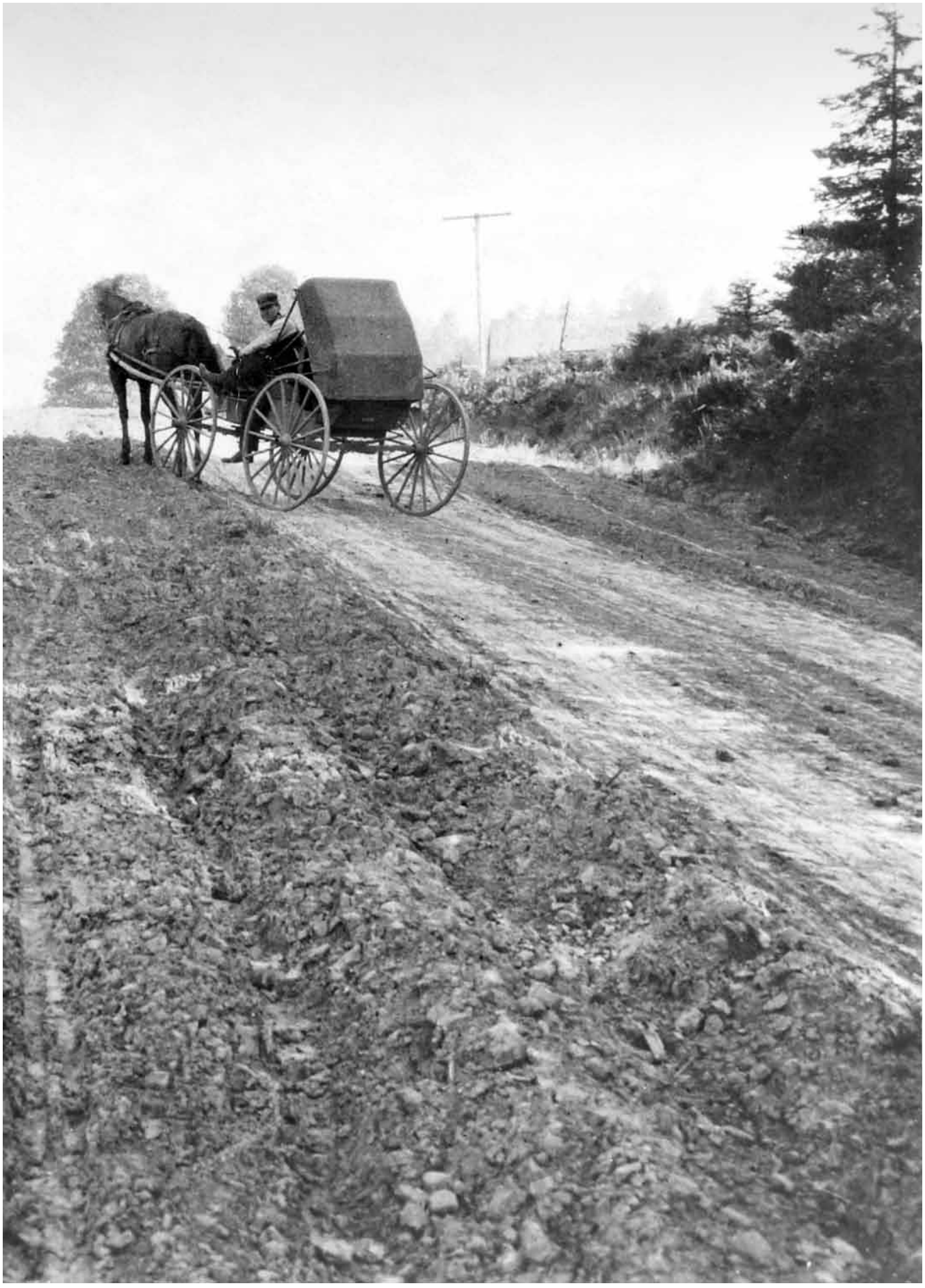
Suddenly with a violent jerk you get flipped over and you plunge head first into a blinding light... SPLASH! When the turbulence settles, you turn yourself upright and you see that you're surrounded by your droplet friends, splashing, swishing about in a very clear pool. When you look around, you see these strange flesh-like smudges all around you. The sucking force is gone but you feel yourself and your friends being turned upside down, like you're in a swimming pool that a huge giant is flipping over... and whoosh... it goes completely dark once again. In your last glimpse of light, you were able to see that you were heading straight towards an extremely strange, reddish-pink oval creature with bizarre wart-like bumps all over it. After seeing such a sight, you're glad it's dark again. You're also glad to feel that wherever you are, the pace has slowed way down. Are you in the soil again? Gosh, it seems much warmer than the soil. It's sort of a cozy feeling after all the splashing and cold metal walls and weird sucking forces and strange sights... maybe it's time for a rest.

Appendix D

Transportation throughout History


ICW

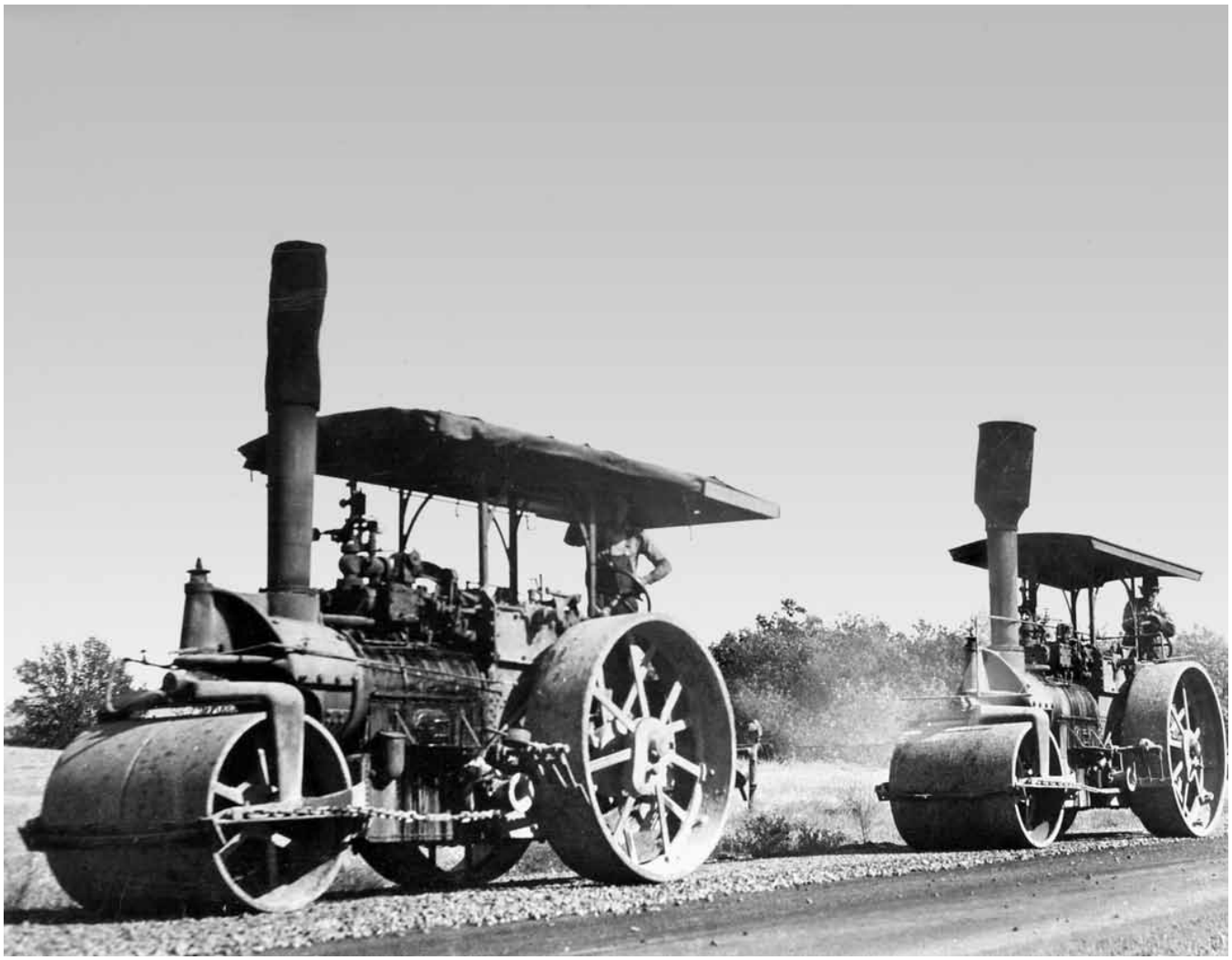
GOODYEAR
COLUMBIA
N4A



Buick

COAST GUARD

125
Gresham
TRI-MET
← Gresham

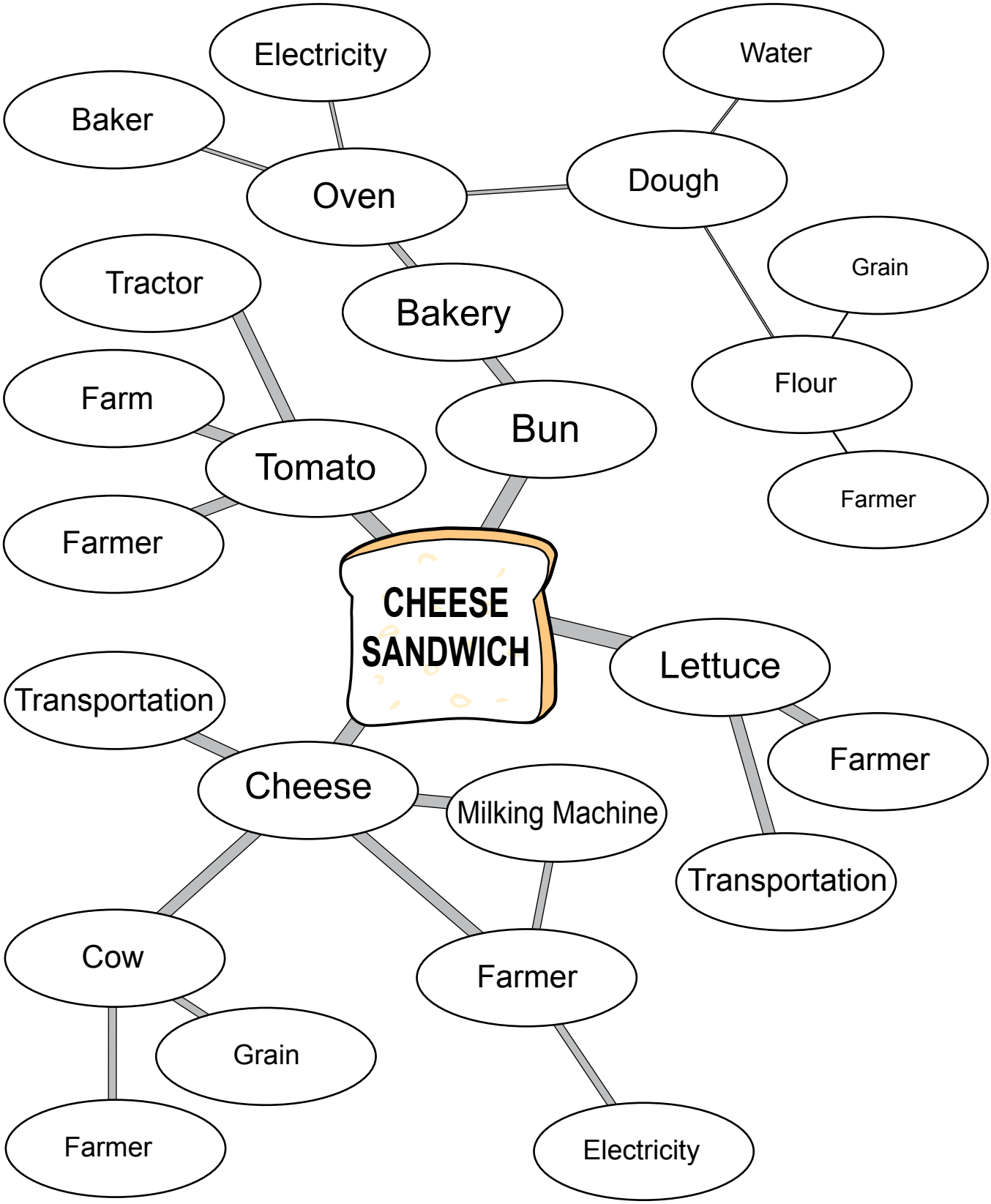


R 4
DIANE

229
229
Amtrak

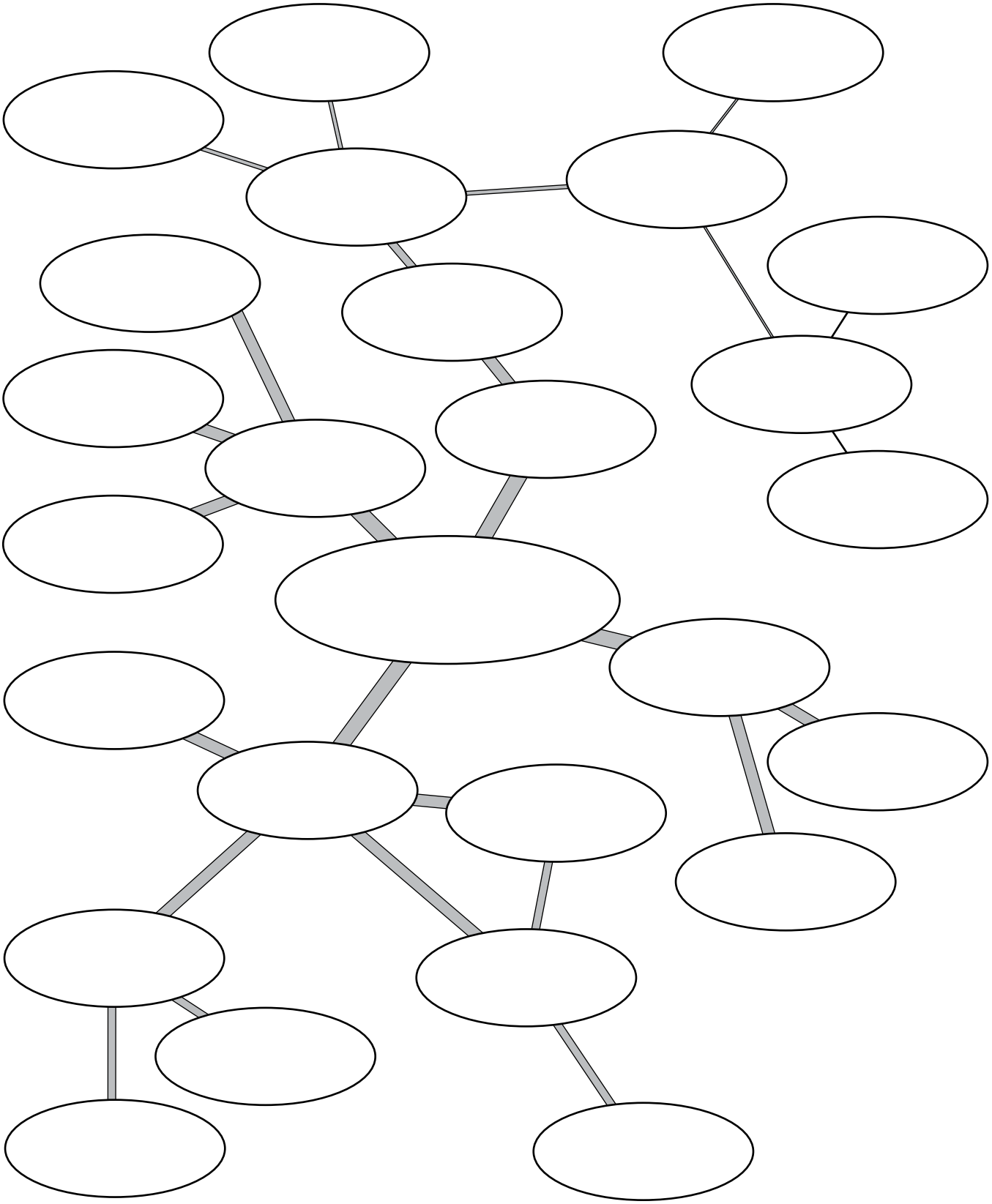
Appendix E1

Bubble Map Template



Appendix E2

Bubble Map Template



Neighborhood Navigators' Pledge

This is to certify that

I, _____

have successfully completed
the Neighborhood Navigators program.
I have a better understanding of how my travel choices impact the environment.
I will make it a habit to use my knowledge of renewable and non-renewable
resources when making travel plans in the future.

SAFE ROUTES TO SCHOOL

Oregon Safe Routes to School Program

Transportation Safety Division – ODOT

Bicycle Transportation Alliance

funding provided by

U.S. Department of Transportation, Federal Highway Administration (FHWA)

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