• Learn to Swim! • Wear a Life Jacket! • Learn to Float! • Learn to Rescue Safely! • Look BeforeYou Leap! • Don't Overload Your Boat! •

Aqua Smart

Activity Lessons for Water and Boating Safety

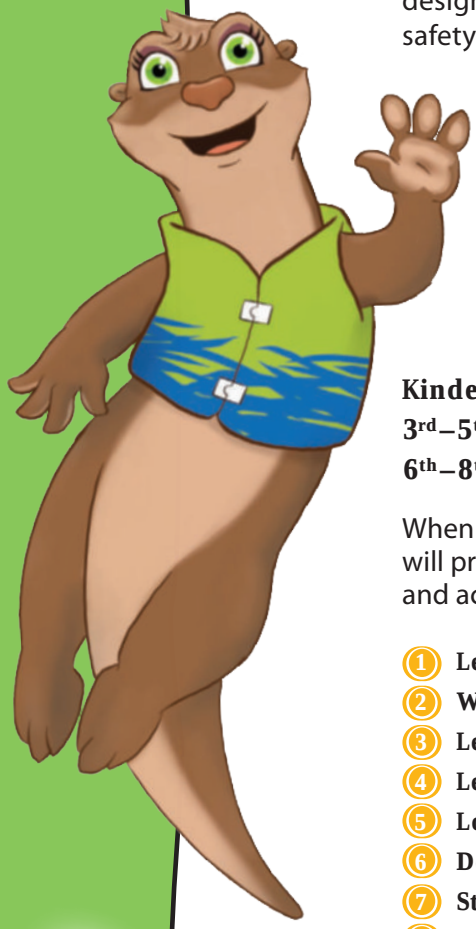
Riva The Otter

CALIFORNIA STATE PARKS BOATING AND WATERWAYS

Includes fun student activity lessons that teach how to be safe and wise when playing in and around water!

AquaSmart

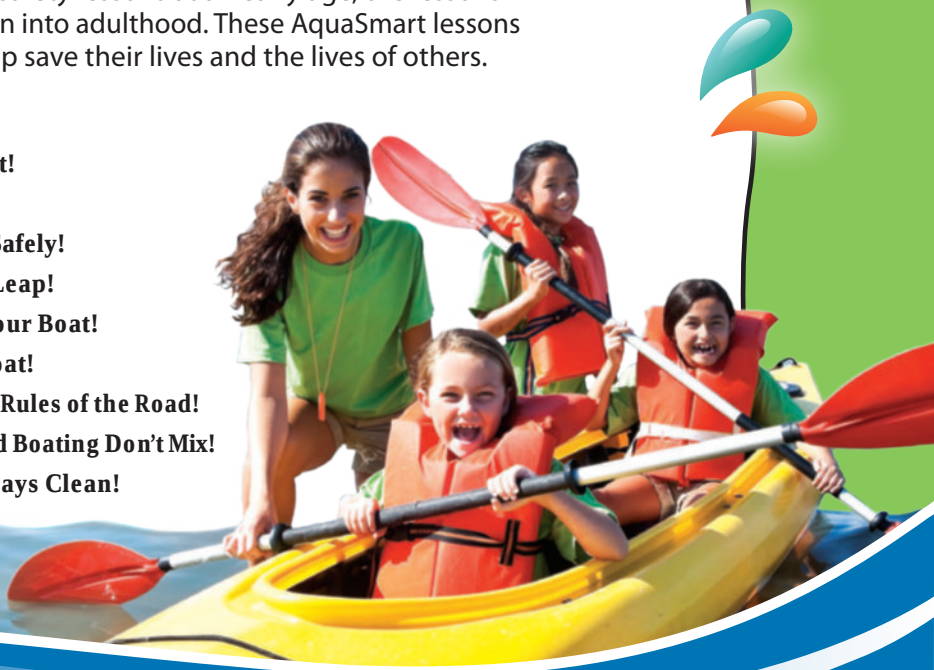
This **AquaSmart Activity Lessons for Water and Boating Safety** resource contains a variety of activities that teach children important lessons about water and boating. The activities are designed to cover multiple aspects of aquatic and boating safety as well as weather, buoyancy, pollution, and more.



The lessons encourage children to enjoy the water, but it also teaches them that it can be dangerous without the proper precautions. The activities present some essential rules and teach children how to make the right decisions. After learning these guidelines and thinking through different scenarios, children will know how to play in and around the water safely—and they'll know what to do if an accident does happen.

When children learn safety lessons at an early age, the lessons will protect them even into adulthood. These AquaSmart lessons and activities can help save their lives and the lives of others.

1. **Learn to Swim!**
2. **Wear a Life Jacket!**
3. **Learn to Float!**
4. **Learn to Rescue Safely!**
5. **Look Before You Leap!**
6. **Don't Overload Your Boat!**
7. **Stay With Your Boat!**
8. **Learn the Boating Rules of the Road!**
9. **Alcohol, Drugs and Boating Don't Mix!**
10. **Keep Our Waterways Clean!**



For more information, contact:
California State Parks Division of Boating and Waterways (DBW)
www.dbw.parks.ca.gov

The Waterways of California

The State of California

In California, the land ranges from desert to forest with short, wet winters and long, dry summers. Water shapes the land and is very important. Every living thing needs water to live. Most of the fresh water California uses comes from snow and rain in the mountains. Waterfalls and streams flow into rivers and lakes. Rivers and lakes flow into canals. And canals are used to bring water to farmers and people in the cities. California is divided into four regions. Label the regions on the map and then answer the questions below.

1. Draw a ☆ star on the map where you live.

2. Name three things that need water to live.

   _____

   _____

   _____

3. Where does most of California's fresh water come from?

   _____

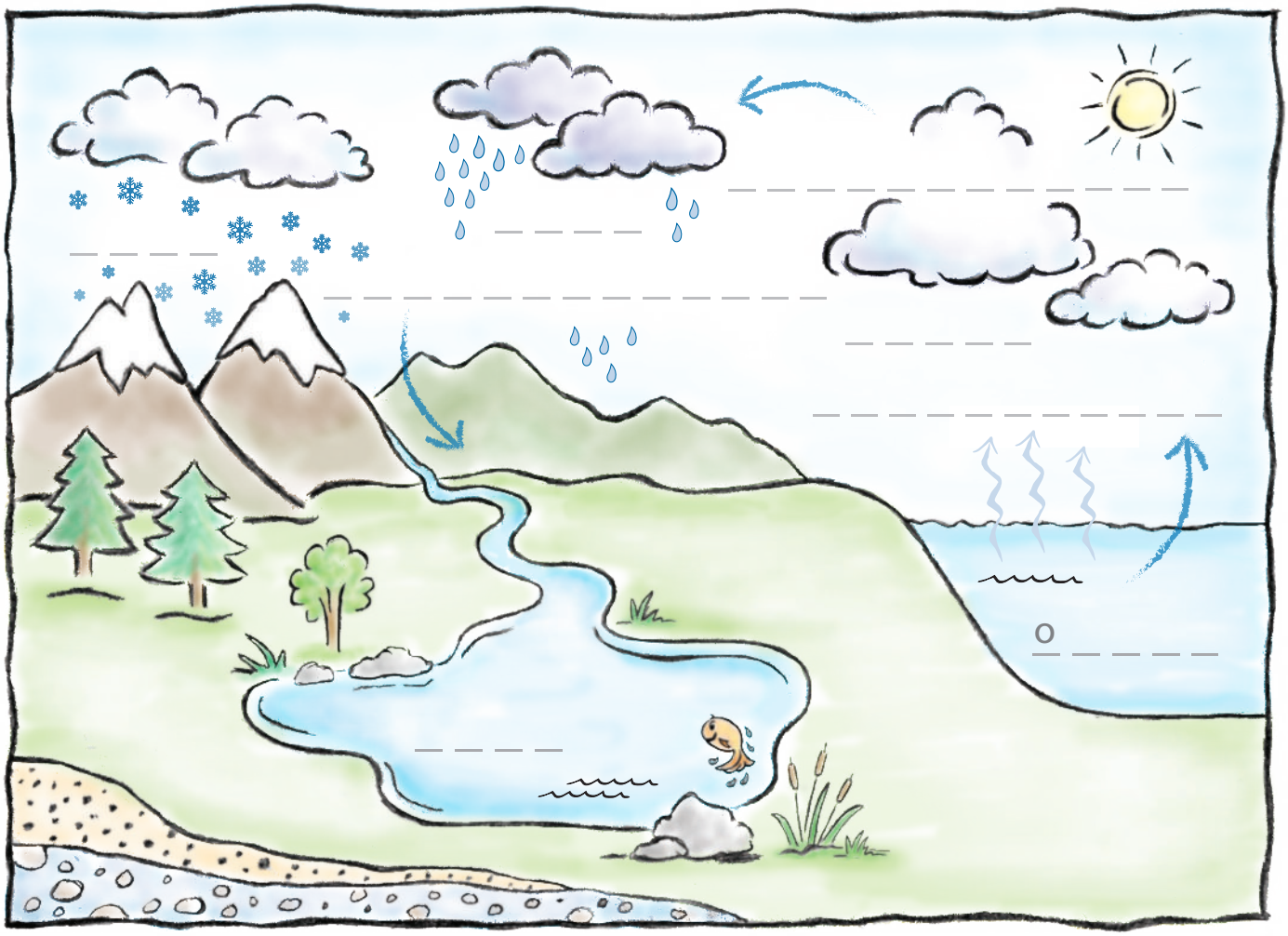
4. Which California region do you think gets the least amount of water?

   _____

Water Cycle

Water Goes Around and Around

The earth doesn't make new water; instead, the water we already have goes around and around in a cycle. The picture below shows how the cycle works. Label the main parts of the water cycle, or label the things you see in the picture. Then, draw something that needs water to live and add it to the picture below.



Word Bank lake snow cloud rain ocean

evaporation: The sun heats the earth's water and turns it into steam. It floats up in the air.

condensation: In the air, the steam gets cold, so it turns back into a liquid and forms clouds.

precipitation: When a cloud gets heavy, the water falls back to earth as rain, snow, sleet, or hail.

Learn to Swim!

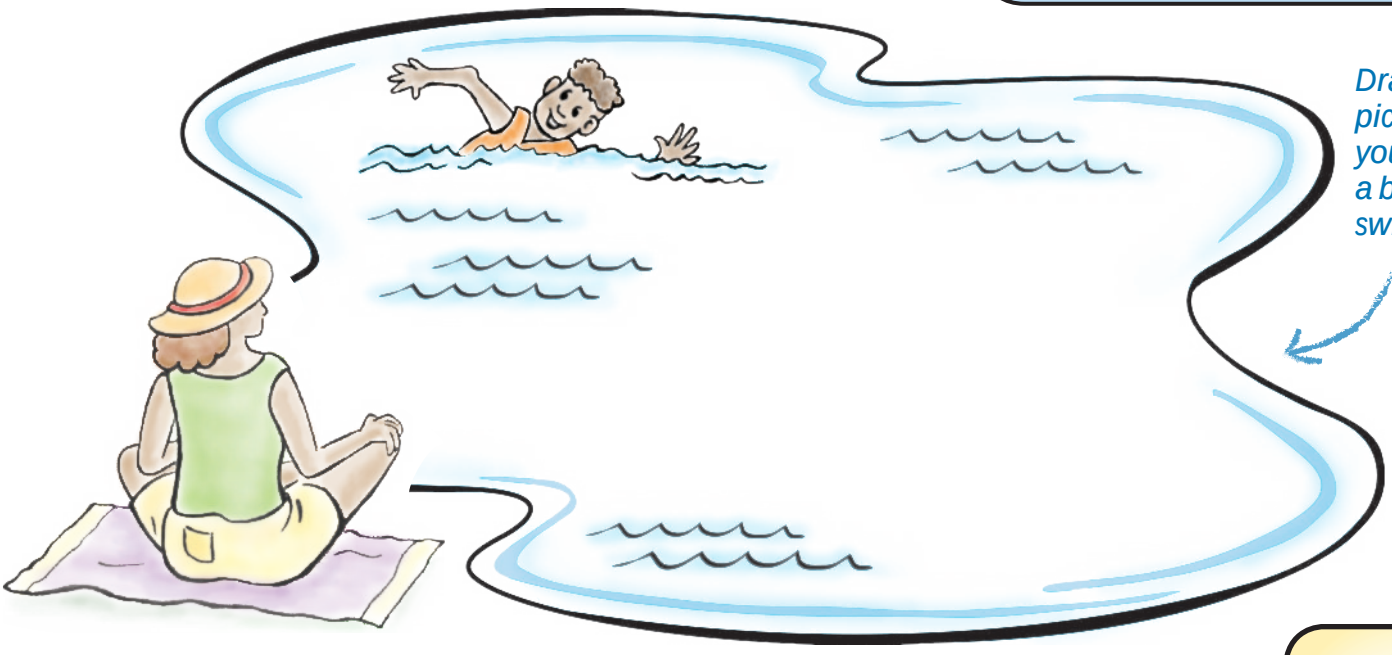
Lesson: Grade Level K–2

Swim with a Buddy

Always swim with a buddy! You can keep each other safe. Never swim alone. Use the words from the Word Bank to fill in the missing words below. Then, draw a picture of yourself or a buddy swimming.

Word Bank

safe	buddy	learn
swim	grownup	



Draw a picture of yourself or a buddy swimming.

You should ▭e▭▭▭ to swim. It is a skill that can save your life!

Swim with a ▭▭▭▭. Never ▭▭▭▭ alone.

Swim when a lifeguard or ▭▭▭▭▭▭ can watch you.

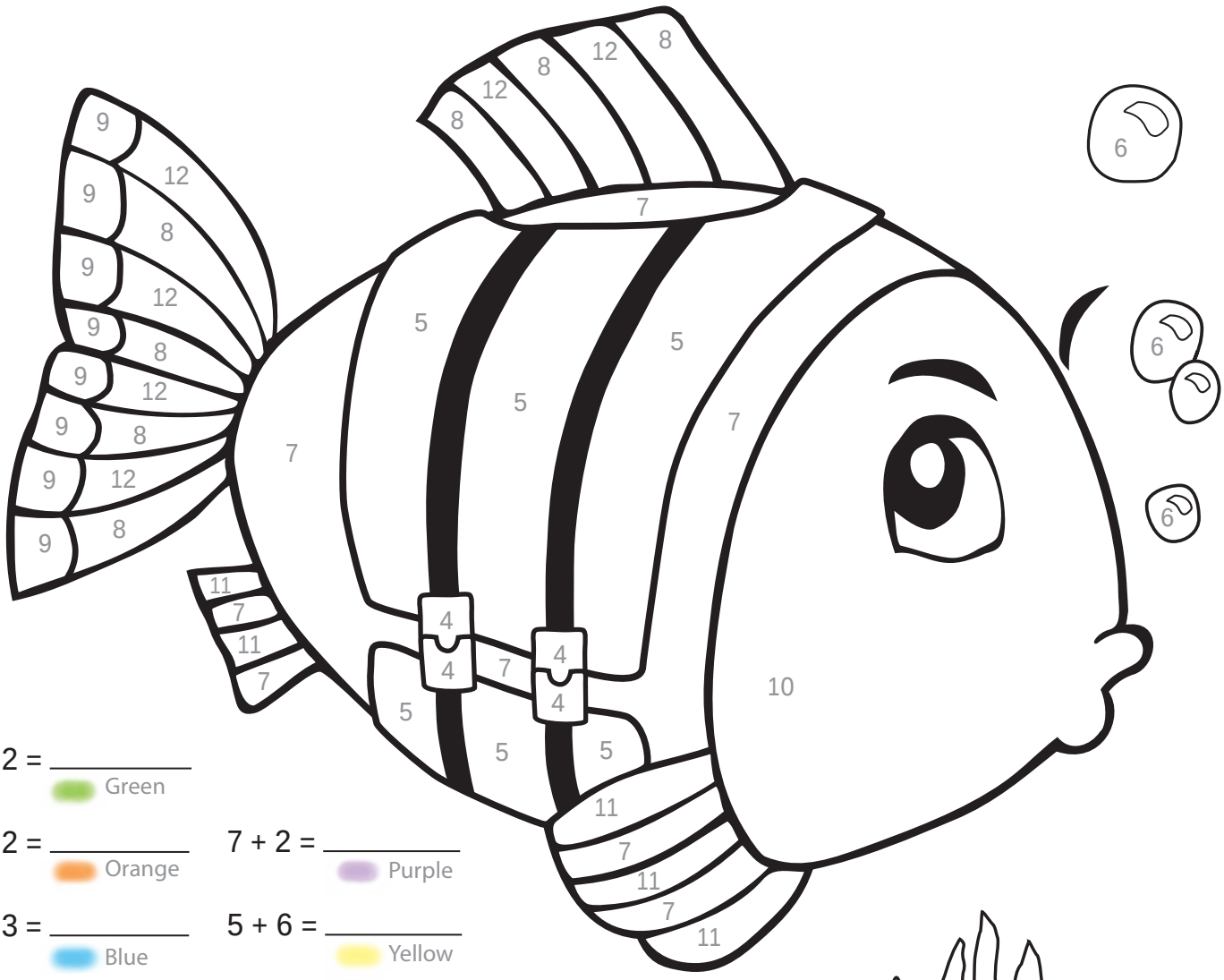
Only swim in a ▭▭▭▭ place.

Wear a Life Jacket!

Lesson: Grade Level K–2

Color Your Way to Safety

Always wear your life jacket when you are playing in the water or playing near water. If there's an accident, your life jacket can save your life! It keeps you floating until someone comes to help. Solve the addition problems to find out which color goes with which number. Then color the fish and his life jacket.



$5 + 2 =$ _____ Green

$3 + 2 =$ _____ Orange

$7 + 2 =$ _____ Purple

$5 + 3 =$ _____ Blue

$5 + 6 =$ _____ Yellow

$3 + 1 =$ _____ Red

$9 + 3 =$ _____ Green

$6 + 4 =$ _____ Yellow

$4 + 2 =$ _____ Blue

Learn to Float!

Lesson: Grade Level K–2

Riva Stays Afloat!

You should learn how to float! If you can float, you can help rescue yourself. You can keep your head above water until someone comes to help you. But even if you know how to float, you should always wear a life jacket when you play around water—just like Riva! Connect the dots to see what Riva is doing in this picture.

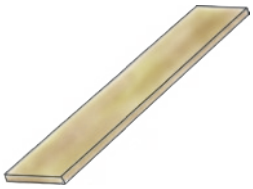
Learn to Rescue Safely!

Lesson: Grade Level K–2

Find the Safety Helpers

If you see someone drowning, you can do three things to help. First, find a safety helper you can use to **reach** the person. Second, find a safety helper you can **throw** to help him float. If you can't reach or throw, then find an adult to **row** out to help.

Draw a circle around the helpers you can use to **reach.** How many did you find ? _____


board


branch


bike


hand


oar


shoes

Draw a circle around the helpers you can use to **throw.** How many did you find ? _____


rescue ring


clock

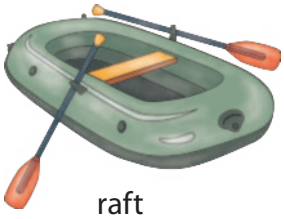

life jacket


beach ball


empty ice chest


inner tube

Draw a circle around the helpers you can use to **row.** How many did you find ? _____

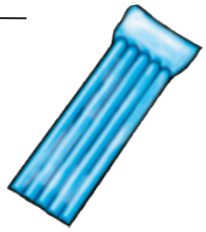

raft


surfboard


inner tube


camera


rowboat


air mattress

If you can't reach, throw, or find an adult to row, call 911 to get help.

Look Before You Leap!

Lesson: Grade Level K–2

Look! What Do You See?

Look for dangers before you enter the water! There may be unseen rocks, logs, garbage, or other hidden things that could injure you. The water may be deeper or shallower than you think. And the water may be moving way too fast to be safe.

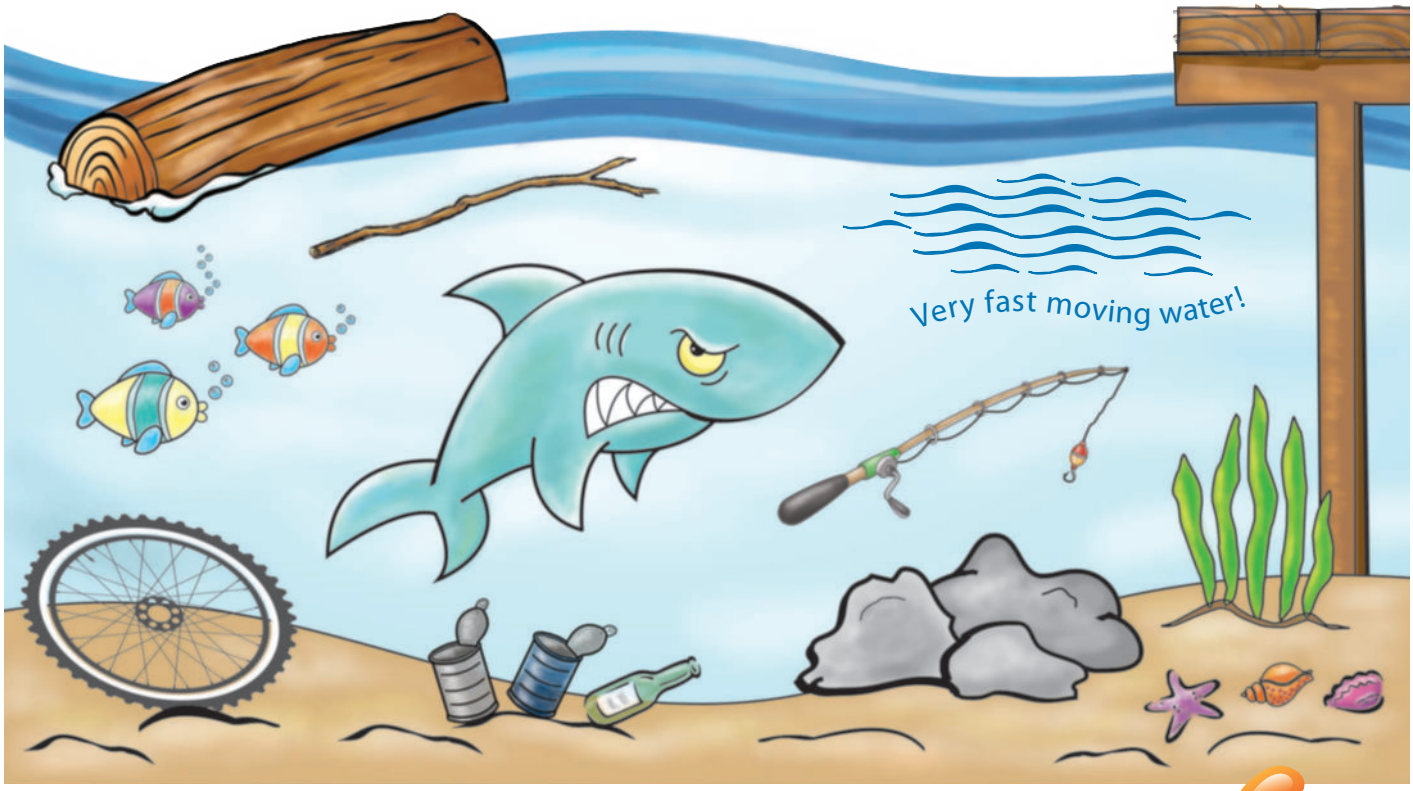
LOOK! *You don't want to jump into this water!*

1. List 6 dangers you see in or under the water:

_____ _____

_____ _____

_____ _____



2. Why do you think it is important to look before jumping into water? _____

_____

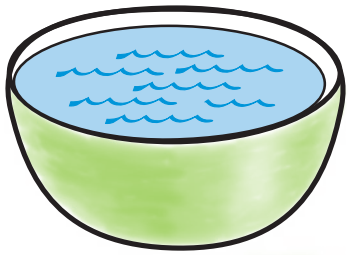
Don't Overload Your Boat!

Lesson: Grade Level K–2

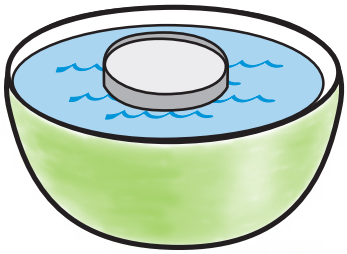
Fun Balancing Boats

When we talk about a boat's load, we mean all the people and things the boat is carrying. The load has to be balanced. That means it can't be too heavy, and it has to be spread out. This experiment will show you that a boat gets in trouble if it doesn't have a balanced load. You need a large bowl, a lid from a jar or small container, and at least 12 pennies.

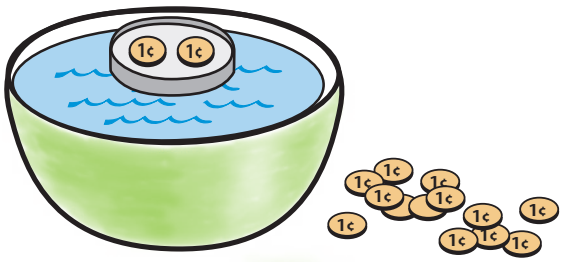
1. Fill the bowl with water. Pretend it's a lake or an ocean.



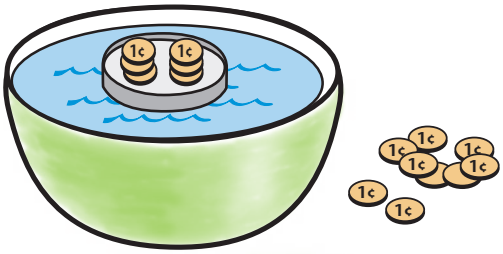
2. Turn the lid upside-down, and gently put it on the top of the water. It will float. Pretend it's a boat.



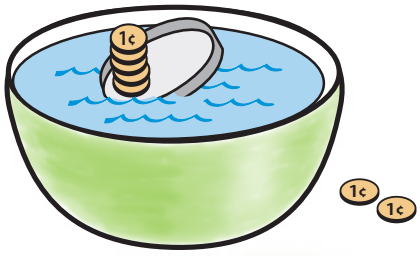
3. Put two coins in the boat. This is the boat's load.



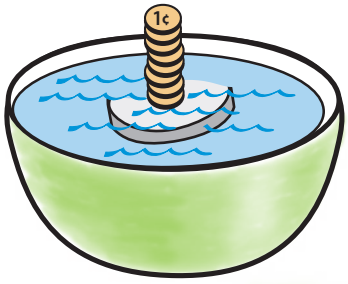
4. **Balanced boat:** If the boat has the same number of pennies on each side, then the load will be balanced, because the weight is spread out. Add a penny to the first stack, and then add a penny to the second stack. Keep adding pennies until you have 3 or 4 coins on each side. The load is balanced, so the boat still floats!



5. **Unbalanced boat:** Take a penny from one stack and put it on the other stack. Keep moving the pennies until they are all on one side of the boat. Now the load is unbalanced, and the boat will flip over!



6. **Overloaded boat:** Take all the pennies off, fix the boat, and start over. Make a stack of pennies, one by one, in the middle of the lid. Use a lot of pennies. When the load gets too heavy, the boat will sink!



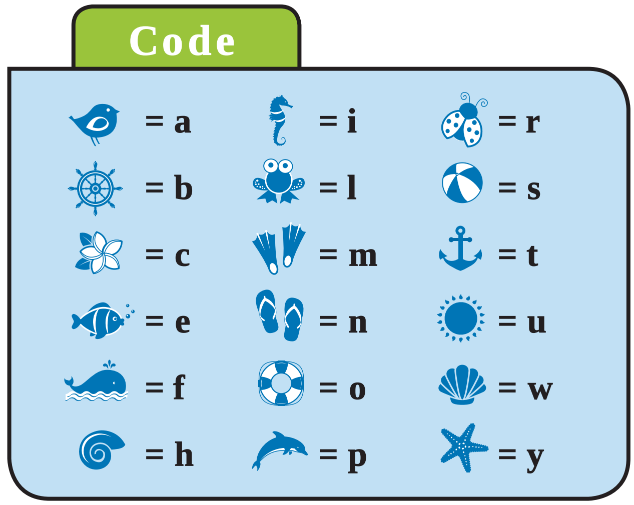
Stay With Your Boat!

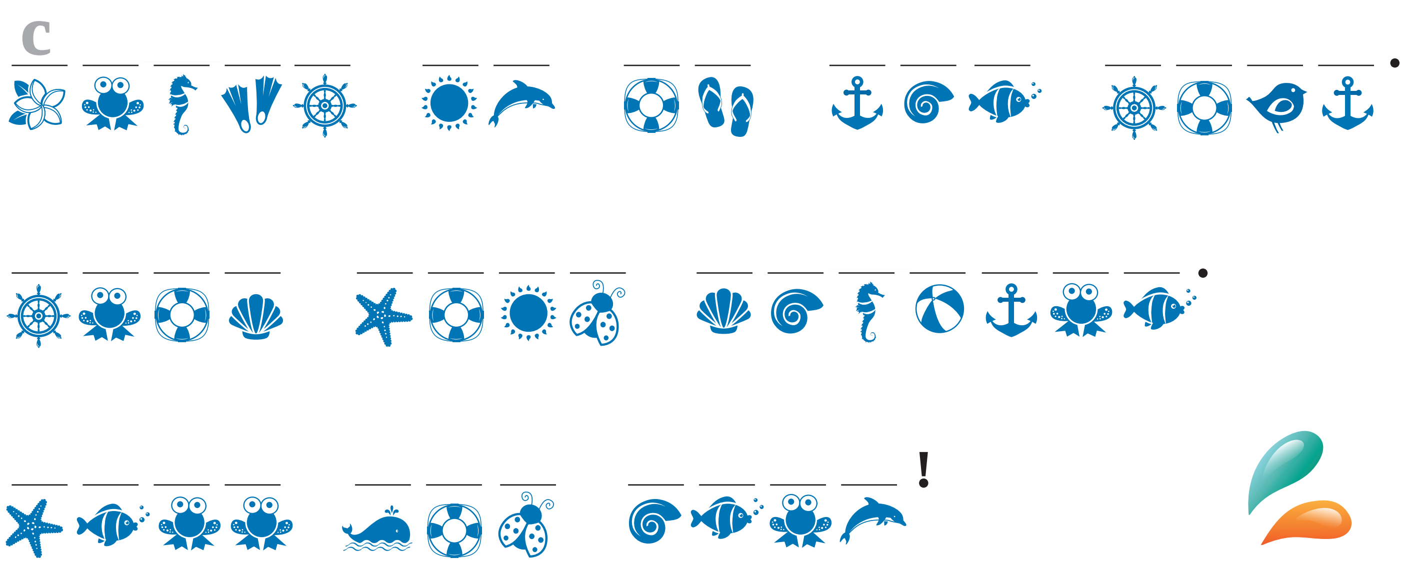
Lesson: Grade Level K–2

Uncover the Secret Safety Message

If your boat turns over, stay with the boat so you can be rescued. It's hard to find a person alone in the water, but it's easier to find a boat, because the boat is bigger. To learn more, use the code to solve the secret safety message below!

If the boat turns over, what should you do?





. . . and stay with your boat!

Keep Our Waterways Clean!

Lesson: Grade Level K–2

Let's Clean the Water

Never leave trash lying around when you visit the water. It is dangerous. Quick, draw **X's** to cross out the pieces of trash, before they hurt the plants and animals that live in the water! Then, **circle** the living things in the water.

Wear a Life Jacket!

Lesson: Grade Level 3–5

Be Safe, Be Smart Scramble

Be safe. Be smart. Learn how to swim before playing in or around the water. It's also important to wear a life jacket—it can help save your life! Unscramble the missing words to complete the sentences.

1. Swimming is a learned skill, and knowing how to swim can _____ your life!
   a v s e

2. It is safe and wise to swim with a responsible adult, or _____.
   u d b d y

3. When you are near water, be sure there is a responsible _____ with you.
   d a u l t

4. Beware of waves and strong currents, and **never** swim in a _____ !
   c a a n l

5. Wear a life _____ when you're in a boat, on a dock, or entering water that may be dangerous.
   a j c t e k

6. A life jacket can keep you warmer in cold water, and it can keep you _____ until help comes.
   a l f o t a

7. Your life jacket should have a _____ attached to the front.
   h t i w s l e

8. A life jacket that fits properly should hold your head _____ the water.
   b a o v e

9. A life jacket is too big if you can pull it off over your _____.
   d h a e

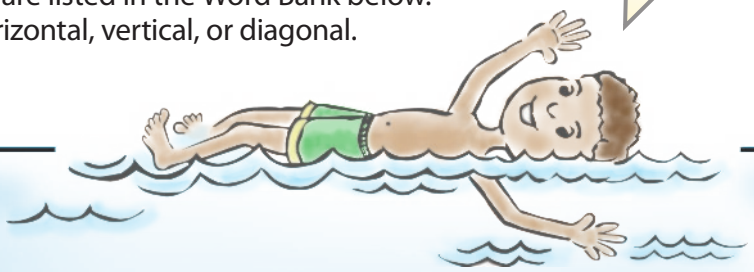
10. Wear a life jacket when you're on a moving boat—it's the _____ for kids.
    w a l

Learn to Float!

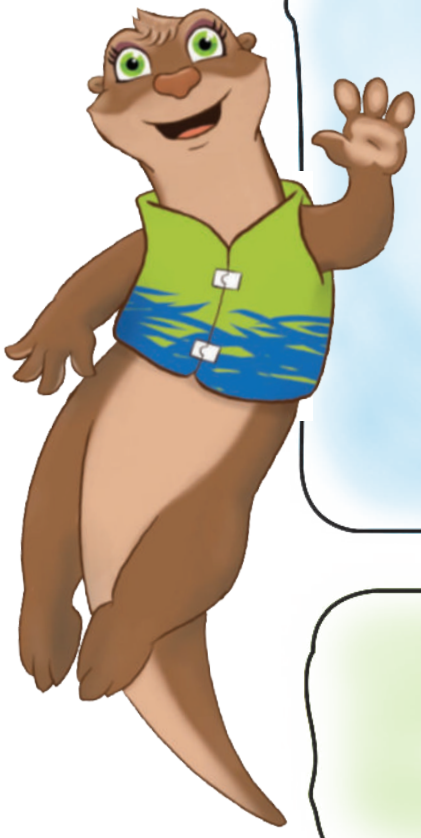
Lesson: Grade Level 3–5

Do You Know How to Float?

Floating might look easy, but it's actually a skill you have to learn. And it's important to learn, because it can help you save yourself if you ever get into trouble in the water. When you learn to float the right way, you can keep your head above water until help comes—without getting too tired. Floating also helps you stay calm. Help Riva search for words in the puzzle that are listed in the Word Bank below. Circle the words you find. Words may be horizontal, vertical, or diagonal.



Ask an adult to teach you how to float. Learn and practice in a safe place, like a swimming pool.



d	a	s	w	i	m	o	t	r	e	s	c
o	p	r	a	c	t	i	c	e	b	o	f
w	s	x	t	c	a	l	m	s	p	c	l
n	t	l	e	a	r	n	b	c	e	a	o
s	r	o	r	y	d	g	t	u	z	b	a
t	e	c	h	n	i	q	u	e	a	u	t
r	a	i	p	s	b	l	c	y	s	d	y
e	d	s	f	o	g	h	a	i	a	d	m
a	h	e	l	p	o	h	m	k	f	y	i
m	t	s	k	i	l	l	c	k	e	f	d

Word Bank

learn	buddy	practice	technique
float	pool	swim	rescue
tread	downstream	safe	skill
water	calm	help	lake

Learn to Rescue Safely!

Lesson: Grade Level 3–5

What Could You Do?

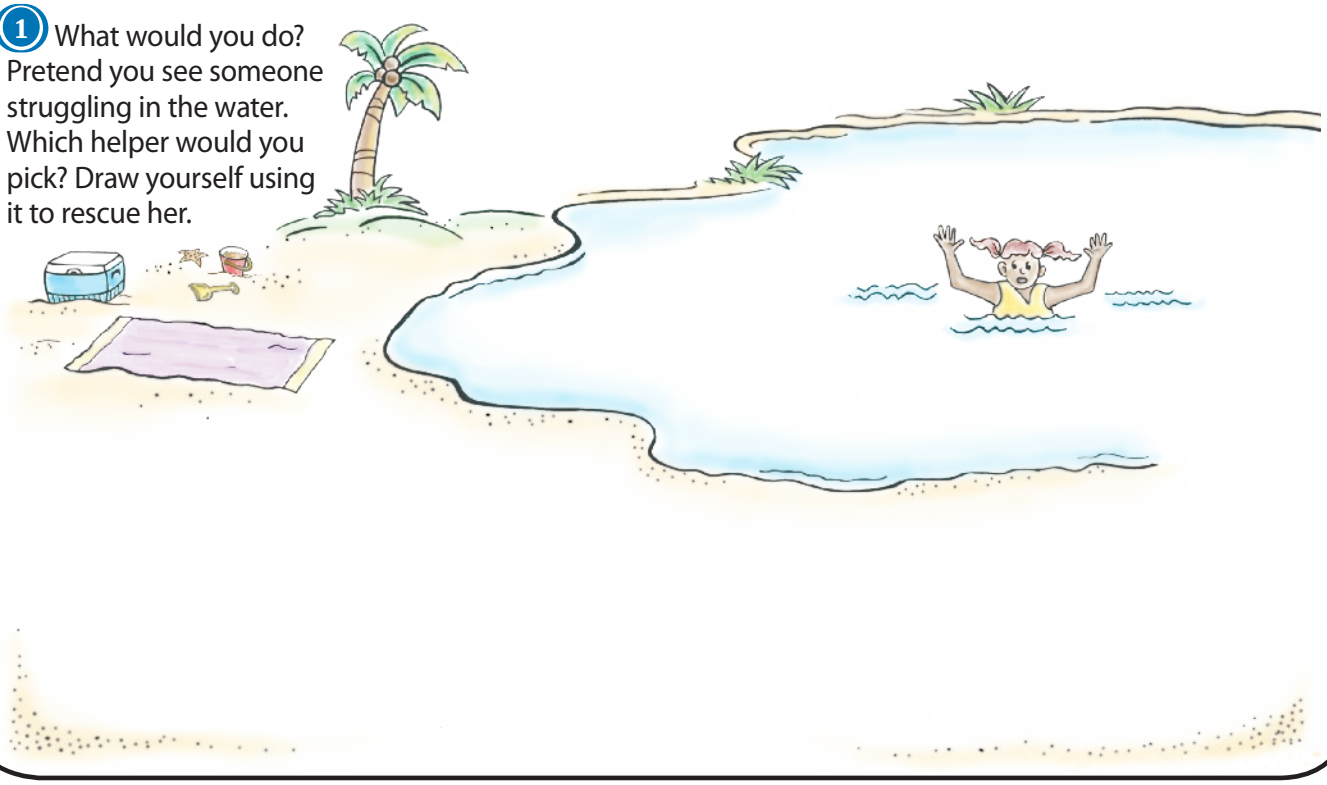
You should always be safe around water, but you should also know what to do if there's an accident. There are three ways you can try to rescue someone who is in trouble. First, grab something long and strong, and **reach** it out to the person so she can grab the other end. Second, find something that floats really well and **throw** it to the person. Third, if you can't reach or throw, then **find an adult to row** out to the person. If you can't reach, throw, or find and adult to row, **call 9-1-1 to get help.**

Helpers good for **reaching.**

Helpers good for **throwing.**

Helpers for **adults to use to row.**

1 What would you do? Pretend you see someone struggling in the water. Which helper would you pick? Draw yourself using it to rescue her.



2 Write a rescue story about the picture above using one of the reach, throw or row helpers.

Look Before You Leap!

Lesson: Grade Level 3–5

Know What You're Getting Into

Don't jump into water if you can't tell how deep it is or if you can't check for hazards. Don't jump if you see a sign that says "No Swimming" or "No Diving." Never jump off bridges, rocks, or cliffs. And never swim in a canal; the water moves quickly, and the sides of the canal are slippery, so it's very hard to climb out. Plus, swimming in a canal is against the law. Read the sentences and fill in the missing words. Then, finish the safety message below by writing in the letter that corresponds to the number listed.

Word List

dangers	leap
injure	bridges
shallow	swimming
safety	lifeguard
canal	watching

Look for ___ ___ ___ ___ ___ ___ ___ (3) (4) before you ___ ___ ___ ___ (10) into the water. There may be rocks, logs, garbage, or hidden objects that could ___ ___ ___ ___ ___ ___ (2) you. The water may also be deeper or more ___ ___ ___ ___ ___ ___ ___ (1) (6) than you think. For your ___ ___ ___ ___ ___ ___ (8), never jump off ___ ___ ___ ___ ___ ___ ___ (7) (14), rocks, or cliffs, and **never** swim in a ___ ___ ___ ___ ___ (11) (5)!

Be responsible; only swim in an area marked for ___ ___ ___ ___ ___ ___ ___ ___ (15), and make sure a responsible adult or ___ ___ ___ ___ ___ ___ ___ ___ ___ (12) (13) is ___ ___ ___ ___ ___ ___ ___ ___ (9).

Solve the Message → **Before you jump, look out for . . .**

___	___	___	___	___	___		___	___	___	___	___	___	___	___	___
1	2	3	3	4	5		6	7	8	9	10	11	12	4	8

___	___	___	___	___		___	___	___	___	___ .
13	5	3	4	14		15	10	9	4	14

Don't Overload Your Boat!

Lesson: Grade Level 3–5

A Balancing Act

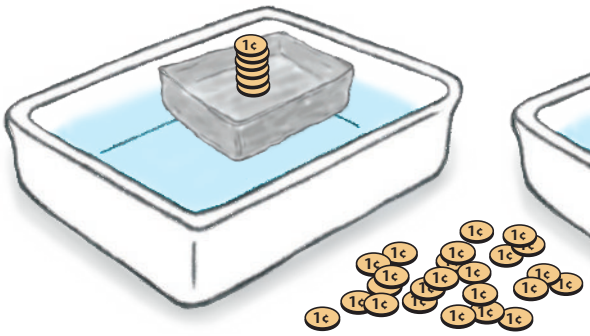
All boats need to be balanced safely. An overloaded boat or unbalanced boat can turn over or capsize, even when there is no wind or rough water. Some boats, though, are easier to sink than others. In this activity, you will design two tin foil boats and load them up with pennies in different ways. You need aluminum foil, tape, a large container full of water, and a bunch of pennies.

Build and Test the Boats

1. Use the foil to construct two boats of different sizes, shapes, or heights. One could be square and one could have pointed ends, or one could have short sides and the other one have tall sides. Fold up the sides so the boats don't leak. Tape the sides if you need to.

2. Place the foil boat into the bowl on top of the water. Carefully add the pennies one by one, building a single stack in the middle of the boat. How many pennies can the boat hold before it sinks?

_____



3. Dry the pennies, then repeat the test on the second boat. How many pennies can it hold? _____

4. Which boat held the most pennies? Why?

_____

Balance and Sink the Boat

5. Take the winning boat and think of other ways the pennies can be arranged in the boat to hold more weight. Draw or write down different ways to arrange the pennies that you think will **sink** the boat:

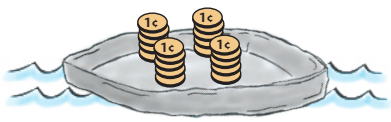
_____

_____

and ways that you think will **balance** the boat:

_____

_____



6. So now, try your experiment with different arrangements, using the same number of pennies, until the boat tips over. Where did you put the pennies and why did that sink the boat?

_____

_____

_____

7. Now try your experiment with different arrangements to keep the boat from sinking. Which method fit the most pennies?

_____

Why didn't the boat tip over?

_____

8. Based on your experiment, what is the best way to load a boat safely?

_____

_____

Stay With Your Boat!

Lesson: Grade Level 3–5

Stay with Your Boat Crossword Puzzle

Even when the weather is calm, boats can capsize. Capsize means to flip over in the water. If that happens, stay with the boat. Try to climb up onto it, as high as you can, and wait there until you're rescued. To finish this crossword puzzle, match the words in the Word Bank to the clues and definitions. Then fill in the blanks with these important words about water safety.

Word Bank

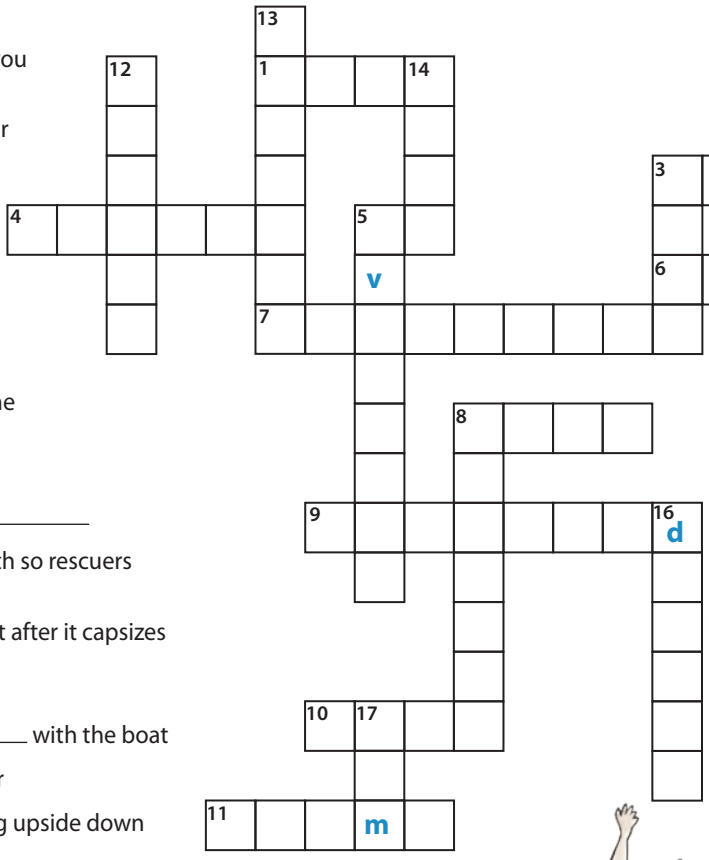
smart	stay	boat
rescue	plan	calm
overturn	whistle	wave
prepared	help	arm
jacket	danger	capsize
climb	emergency	adult
float	on	

Across

1. If you see someone in trouble, you should _____
2. To rest on your back in the water
3. Learn about water safety; be Aqua _____!
4. Wear a life _____when you're near the water
5. The opposite of *off*
6. Another word for a grownup
7. A scary situation where someone is in danger
8. Don't panic; stay _____
9. If you plan ahead, you'll be _____
10. To move your arm back and forth so rescuers can see you
11. To move upward onto your boat after it capsizes

Down

3. If your boat capsizes, _____ with the boat
5. A boat turning over in the water
8. Another word for a boat flipping upside down in the water
12. To save someone who is in danger
13. Blow a _____ to make a loud, shrill noise
14. Be prepared; make a detailed _____
15. A vehicle that travels on water
16. The opposite of safety
17. Wave your _____ to get a rescuer's attention



Learn the Boating Rules of the Road!

Lesson: Grade Level 3–5

What Does the Sign Say?

People using their boats in the water have to follow rules and pay attention to signs—just like people driving cars on the road. See if you can tell what these signs and symbols mean. Look at each sign, check the Word List, and then fill in the correct letters.

Word List

- a Swimming
- b First Aid
- c Warning: Rock
- d 5 Miles Per Hour
- e Boats Keep Out
- f Recycle
- g Diver in the Area
- h Need Help (distress)
- i Center Channel Buoy
- j No Swimming
- k Railroad Crossing
- l No Smoking
- m Weather Flag
- n Flashlight: SOS
- o Right Channel Buoy
- p Left Channel Buoy
- q Poisonous
- r No Parking
- s Yield: Pedestrian Crossing
- t Disability

Keep Our Waterways Clean!

Lesson: Grade Level 3–5

A Clean Environment is a Healthy Environment!

People, plants, and animals depend on clean, safe water. Write in the names of living things in the first box below. List recyclable and throw-away items in the middle box below. In the last box, list items that should be taken home.

Living Things	Recycle or Throw Away	Items to Take Home

Learn to Swim!

Lesson: Grade Level 6–8

Learn to Swim Safety Word Match

Learning to swim is extremely important. It can keep you alive when you're playing in or near water, and it can help you save yourself if needed. Not only does it keep you safe, it also makes boating and water activities a lot more fun. Knowing how to swim makes you feel confident and powerful in the water. You should also learn to float properly; if you ever need to be rescued, it can help you stay calm and keep your head above water without getting tired.

Learn more about swimming as you draw a line to match up the water safety terms to the correct definition.

accident	• an artificial lake where water is collected as a water supply	**lifeguard**
	• an event occurring by chance or unintentionally	
backstroke	• an expert swimmer employed to keep other swimmers safe	**reservoir**
	• able to float in or rise to the surface of a liquid	
buoyant	• able to choose between right and wrong	**responsible**
	• a style of swimming on your back	
confidence	• a learned skill to stay on the surface of water without sinking	**safety**
	• the ability to use one's knowledge effectively in doing something	
float	• freedom from danger	**skill**
	• an upright position in water to stay afloat by calmly moving your arms and legs in wide downward circular motion	
freestyle stroke	• belief in one's own abilities; a feeling of trust	**swift current**
	• a floating board used in swimming, by a beginner, to help keep the head up while practicing the flutter kick	
kickboard	• body of water that has a continuous onward movement	**tread water**
	• a style of swimming, also know as the crawl, in which the swimmer faces downwards and moves their arms alternately in strokes while kicking	

List some fun things you can do in the water if you know how to swim:

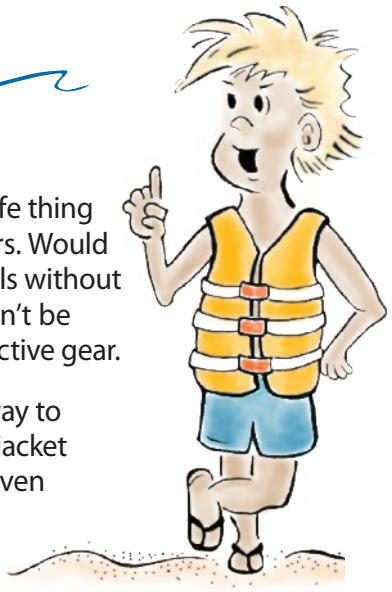
_____

List two skills that help keep you safe in or out of the water:

_____ _____

Wear a Life Jacket!

Lesson: Grade Level 6–8



Be Smart and Safe—Wear a Life Jacket

When you're on a boat or near the water, always wear a life jacket. It's the smart and safe thing to do, just like wearing safety equipment for most sports and many professional careers. Would a baseball player step up to the plate without a helmet? Would a scientist mix chemicals without wearing gloves and goggles? Of course not—it would be foolish. Plus, a batter wouldn't be allowed to bat with a bare head, and the lab has rules requiring everyone to wear protective gear.

It's the same way with wearing life jackets around water. It's an easy, common-sense way to stay safe, and sometimes the law requires it. If you're under 13, you have to wear a life jacket on a moving boat. And anyone waterskiing or riding a jetski must wear a life jacket—even grownups—just like you have to buckle your seatbelt in the car.

What protective gear would you need for these activities?

1. Scuba diving: _____
2. Playing hockey: _____
3. Water skiing: _____
4. Playing football: _____
5. Mountain biking: _____
6. Fixing wires on telephone poles: _____
7. Fighting in a war: _____
8. Welding or forging: _____
9. Constructing a building: _____

What's another sport, job, or activity that requires safety equipment? _____

Imagine you work at a life jacket company. Your job is to design a life jacket for middle schoolers—a jacket so awesome, it makes them want to wear life jackets whenever they're around water. Draw your design here.

What would your life jacket look like?

What cool features could you add?

Learn to Rescue Safely!

Lesson: Grade Level 6–8

A Good Safety Plan Covers the Main Points

Everyone should learn basic water rescue skills because an accident could happen any time you're near water. If someone falls into the water, there are four ways you can try to save the person.

1 First, try to **reach** the person. Hold out your hand if the person is close enough, or find something long and strong, like a rope, an oar, or a pole.

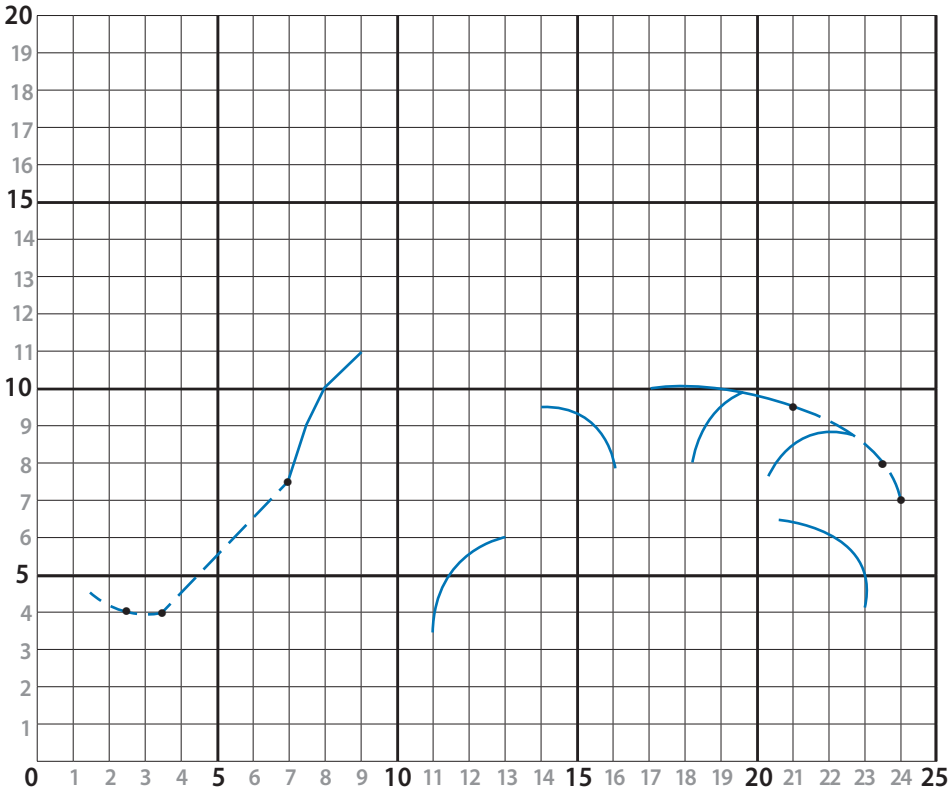
2 If you can't find anything, or the person is too far to reach, then look around for something that floats very well, and throw it. You could throw an inner tube, a life preserver, a life jacket, or even an empty ice chest.

3 If you can't reach or throw, find an adult to row out to rescue the person. The adult could use a boat, a raft, a surfboard, or even an air mattress.

4 If you can't reach, you can't throw, and you can't find an adult or anything to row, then call 911 for help.

Safety First

1 Plot the points on the graph using the coordinates provided. Then, connect the points to see what's revealed! The crossed-out coordinates have been plotted for you.



2 What rescue "reach" item is revealed by plotting and connecting these coordinates listed on the below?

_____

~~(7, 7.5)~~	(6.5, 10)	(17, 18)
~~(3.5, 4)~~	(7.5, 10.5)	(16, 17.5)
~~(2.5, 4)~~	(8.5, 11.5)	(15.5, 17)
(1.5, 4.5)	(15, 17.5)	(9, 11)
(1, 6)	(15.5, 18)	**stop and connect**
(5, 9.5)	(16, 19)	

3 What rescue "throw" item is revealed using the coordinates below?

_____

~~(21, 9.5)~~	(20, 2.5)	(10.5, 7)	(17, 8)	(17, 5)	(14, 7)	(19, 5.5)	(15, 5)	(12, 8.5)
~~(23.5, 8)~~	(18, 2)	(12, 8.5)	(19, 8)	(15, 5)	(15, 7.5)	(20, 4)	(14.5, 3.5)	(13.5, 8)
~~(24, 7)~~	(14.5, 2)	(14, 9.5)	(21, 7)	(13.5, 5.5)	(17, 8)	(20, 2.5)	(14.5, 2)	(14, 7)
(24, 6)	(13, 2.5)	(17, 10)	(20, 6)	(13, 6)	**stop and connect**	**stop and connect**	**stop and connect**	**stop and connect**
(23, 4)	(11, 3.5)	**stop and connect**	(19, 5.5)					
(21.5, 3)	(10, 5.5)							

Look Before You Leap!

Lesson: Grade Level 6–8

Hidden Hazards Challenge

Always look for dangers before you jump into the water. There could be rocks, garbage, or other hidden things that could hurt you if you land on them. The water could be shallower or colder than you expect. Even if the water looks calm, there could be a strong undercurrent beneath the surface.

Don't jump in if you can't tell how deep it is or if you can't check for hazards. Don't jump if you see a sign that says "No Swimming" or "No Diving." Never jump off bridges, rocks, or cliffs. And never swim in a canal; the water moves quickly, and the sides of the canal are slippery, so it's very hard to climb out. Plus, swimming in a canal is against the law.

To stay safe, stick to areas designated for swimming. And even then, look before you leap. Look in the word search for the dangers listed in the Word Bank.

Word Bank

currents	canal
debris	rocks
garbage	shallow
hazards	cold
hidden	slippery
cut	illegal
scrape	steep
break	gross
bridges	trouble
cli s	waves
injury	undercurrent
sharp	litter

o a u n d e r c u r r e n t a s c q
b s c r a p e e f r o c k s y l t h
r c u r r e n t s c a n a l u i l a
e g a r b a g e s s o p a t b p a z
a t d e b r i s g e r l e r c p f a
k s h a l l o w u a a t d o a e c r
a h b z a r d c h r s e n u e r l d
b r i d g e s s u i s t m b g y i s
m h i d d e n t c t n a e l a r f a
w a v e s r i l l e g a l e l d f r
m l i t t e r k i n j u r y p a s e

Don't Overload Your Boat!

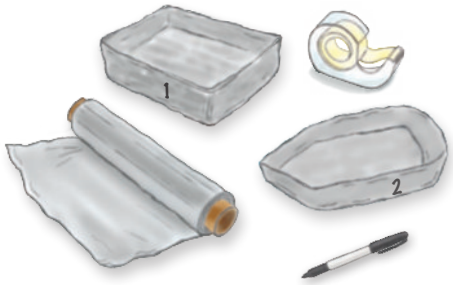
Lesson: Grade Level 6–8

Does it Float Your Boat?

All boats need to be balanced safely. An overloaded boat or unbalanced boat can turn over or capsize, even when there is no wind or rough water. In this activity, you will play with buoyancy and balance by designing five tin foil boats and loading them up with pennies. You'll see that some boats are easier to sink than others, and you'll find the best way to load a boat safely. You need aluminum foil, tape, a permanent marker, a large container full of water, and a bunch of pennies.

Build and Test the Boats

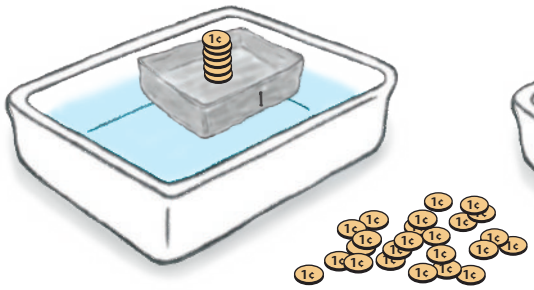
1 Use the foil to construct five boats of different sizes, shapes, heights, and amounts of foil. Fold up the sides so the boats don't leak. Tape the sides if you need to. Using the marker, number the boats 1-5.



2 Which boat do you think will hold the most pennies? Why?

_____

3 Carefully add the pennies to the first boat, building a single stack in the middle of the boat until it sinks. Dry the pennies, then repeat with the next boat.

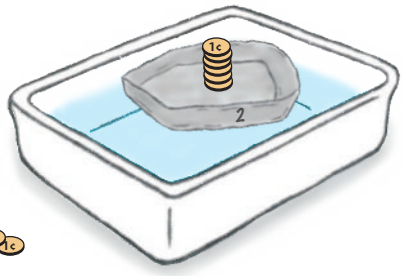


Record the penny capacity of each boat before it sinks or capsizes:

1: ____ 2: ____ 3: ____4: ____ 5: ____

4 Which boat held the most pennies? Why?

_____



Balance and Sink the Boat

5 Take the winning boat and think of other ways the pennies can be dispersed in the boat to hold more weight. Draw or write down different arrangement of pennies that you think will cause the boat to **capsize:**

_____

_____

and ways that you think will maintain the boat's **equilibrium:**

_____

_____

6 So now, try your experiment with different arrangements, using the same number of pennies, until the boat capsizes. Where did you put the pennies and why did that sink the boat?

_____

_____

7 Try to sink the boat using the *fewest* pennies possible. How many pennies did you need and where did you put them?

_____

8 Now try to fit as many coins as you can. Try five different arrangements. Which method balanced the most pennies and why didn't the boat tip over?

_____

_____

9 Based on your experiment, is **counterbalance** important to maintain stability in a small boat? **Yes** **No**

What is the best way to load a boat safely?

_____

_____

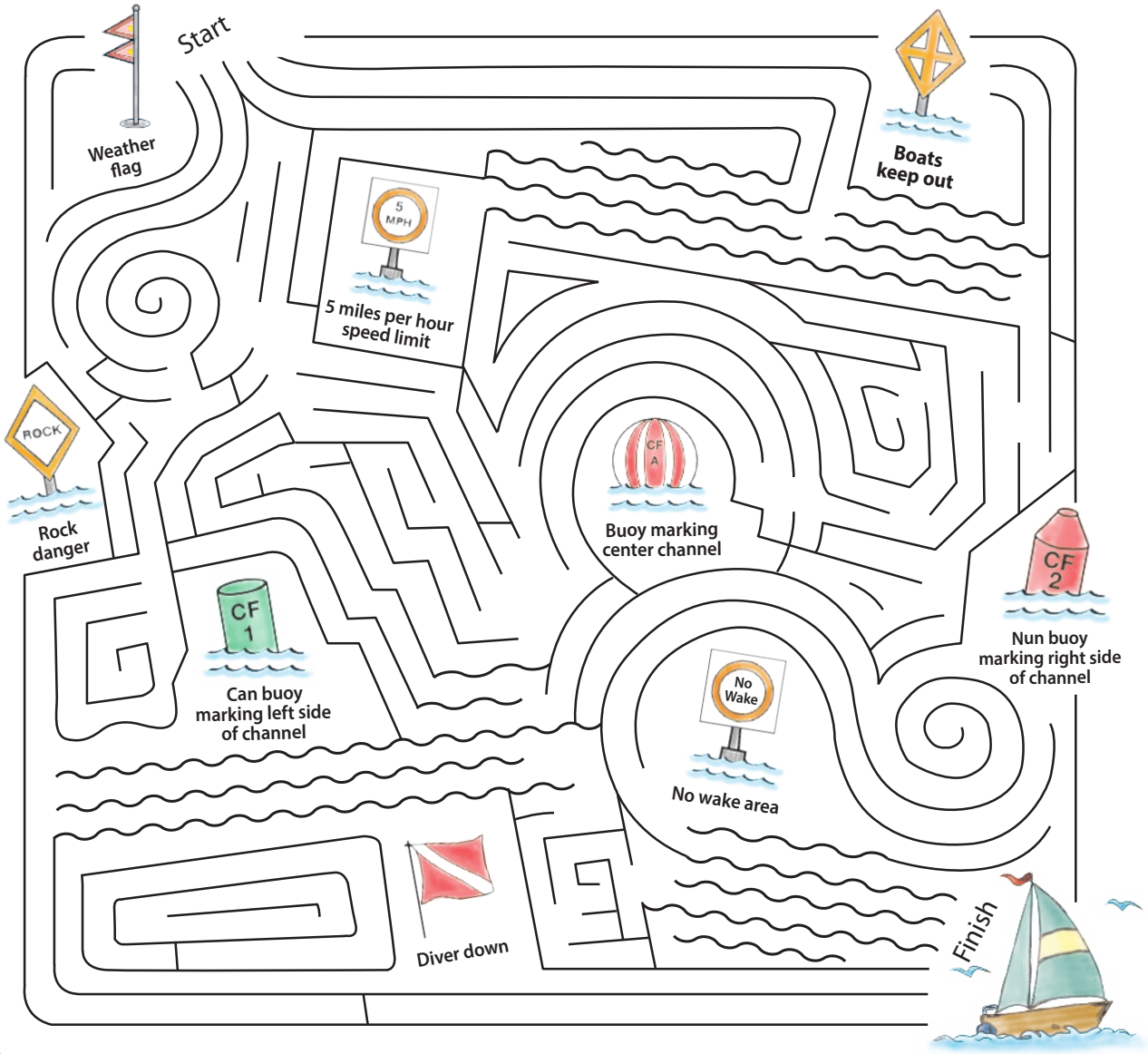
_____

Learn the Boating Rules of the Road!

Lesson: Grade Level 6–8

An Amazing Navigational Voyage!

California waterways have navigation signs to guide boaters and keep them safe, just like there are signs on the side of the road for cars. The signs direct traffic and provide important information. For example, a diamond warns about a danger, like rocks, a wreck, or a shallow area. A circular sign means you're in a controlled area and you have to follow the instructions inside the circle, like a speed limit or a rule against making a wake. A green can-shaped buoy marks the left side of a channel, a red nun buoy marks the right side, and a red-striped spherical buoy marks the center. As you navigate your way through this maze, you'll learn to recognize some basic navigational signs.



If you see a rectangular flag with a diagonal stripe, what is below the water? _____

Alcohol, Drugs and Boating Don't Mix!

Lesson: Grade Level 6–8

It Can Be a Dangerous Path

Boats can be dangerous if you aren't careful, but if you follow the basic guidelines to keep yourself safe, they can be great fun. Alcohol and drugs, however, are never safe when you're boating. If you're under the influence on a boat, you'll be in danger no matter what other rules you follow. Read along the sentence paths and fill in the blanks from the word bank to see how drugs and alcohol affect your body, mind, and boating skills.

Word List

risks	**multiply**
judgment	**driver's license**
illegal	**brake**
boat	**peripheral** (edges of what you see)
movements	
dizzy	**temperature**

The Law: It's _____ to operate a boat while under the influence of drugs or alcohol, just like driving a car.

seem like great ideas. You're more likely to take _____ and get into life-threatening situations. **Reflexes:**

and something darted across the road, it would take you longer to step on the _____.

make it difficult for your body to control its _____, so sun

ability to focus. **Balance:** Alcohol and other drugs mess with your

balance on a _____ can be dangerous.

Vision: Alcohol and other drugs mess up your _____

vision, your night vision, and your eyes'

it even worse. Losing your

you _____ and wobbly. Being hot and tired makes

sense of balance — they can make

exposure makes you more likely to pass out.

Boating Environment: Wind, noise, sun, and waves can

_____ the effects of drugs and alcohol. Wind and noise can make you feel

disoriented or distracted more easily. Alcohol and drugs

Alcohol and other drugs slow your reflexes. You don't notice things as quickly,

your brain struggles to process information, and your body _____ lag in obeying your

thoughts. For example, if you were driving a car under the influence,

If you got caught operating a boat under the influence, you would have a hard time

getting a _____ _____ once you're old enough. **Brain:** Drugs and alcohol affect your brain,

making you have poor _____. That means bad decisions can

Keep Our Waterways Clean!

Lesson: Grade Level 6–8

Imagine a Pollution Plague in the Future

We need to protect our environment and keep our waterways clean because people, plants, and animals depend on safe water to survive. Plastic is one of the worst and most common pollutants. Some types of plastic take hundreds of years to decompose. Other types decompose more quickly, but they release toxic chemicals as they do. Write a science fiction news report describing what life could be like in 200 years if pollution continues to fill and poison the ocean. Each paragraph has been started for you; finish it with a short blurb about a crazy event or horrifying discovery. Then, list some solutions to the problem in the last paragraph.

The Pollution Plague *reported by:* _____

Over the past 200 years, pollution has filled the ocean and changed the world forever. "My great-grandpa used to go fishing at the shore," said one young girl. "But I took my brother there last week, and as soon as he touched the water, _____

_____

_____

Seabirds and marine animals get entangled in the ocean trash, which makes it difficult for them to move, breathe, or eat. As a result, _____

_____

_____

When ocean creatures accidentally eat plastic, it can poison or choke them. Other times, it makes their stomachs feel full, so they stop eating. Last week, scientists found _____

_____

_____

A few ocean species have survived—and they've found a new way to travel. Floating debris creates gigantic rafts, and sea creatures living in them can reach faraway destinations well beyond their native habitats. A wild band of angry _____ recently reached the California beaches and immediately _____

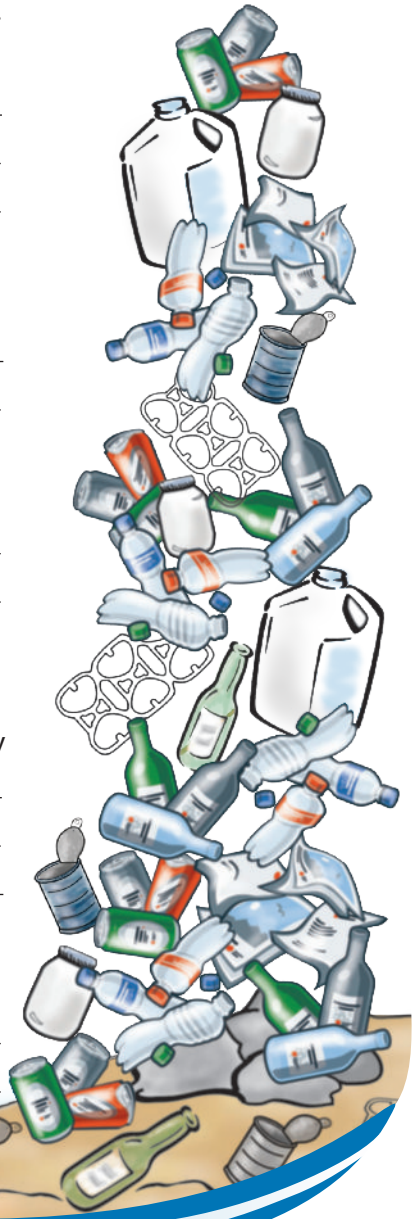
_____

_____

Californians, concerned about agricultural crops and seafood affected by pollution, have suggested solutions to clean up the environment by _____

_____

_____



Activity Answer Guide

Page 1

Coastal region: blue area along the entire left side of map

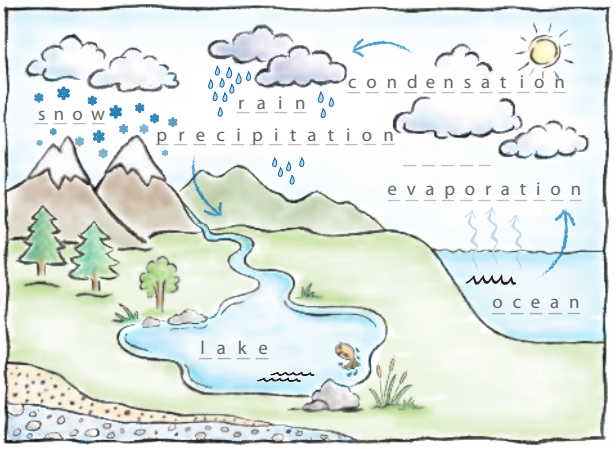
Mountain region: green area on map with mountains and trees

Central Valley region: large yellow area in center of map

Desert region: orange area on lower left side of map

1. Draw star on map where you live
2. humans, animals, plants (answers vary)
3. snow and rain
4. Desert region

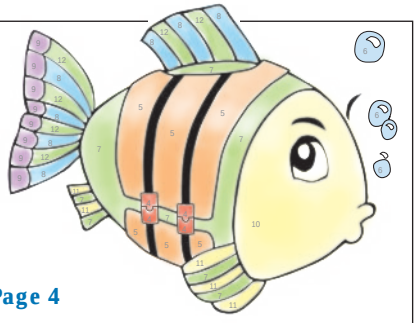
Page 2



Page 3

Draw a picture of yourself swimming.

learn
buddy
swim
grownup
safe



Page 4

5 + 2 = 7

3 + 2 = 5 7 + 2 = 9

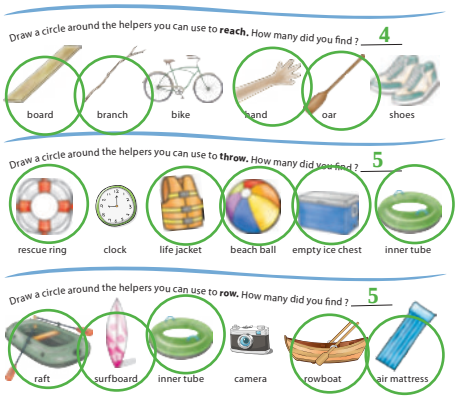
5 + 3 = 8 5 + 6 = 11

3 + 1 = 4 9 + 3 = 12

6 + 4 = 10 4 + 2 = 6

Page 5

Page 6



Page 7

List at least 6 items:

log
branch
fast moving water
shark
bike tire
fishing pole
trash (sharp cans and bottle)
rocks

There may be unseen rocks, logs, garbage, or other hidden dangerous things that could injure you.

Page 8

Balanced boat: If the boat has the same number of pennies on each side, then the load will be balanced.

Unbalanced boat: Take a penny from one stack and put it on the other stack. Keep moving the pennies until they are all on one side of the boat. Now the load is unbalanced, and the boat will flip over!

Overloaded boat: Take all the pennies off, fix the boat, and start over. Make a stack of pennies, one by one, in the middle of the lid. Use a lot of pennies. When the load gets too heavy, the boat will sink!

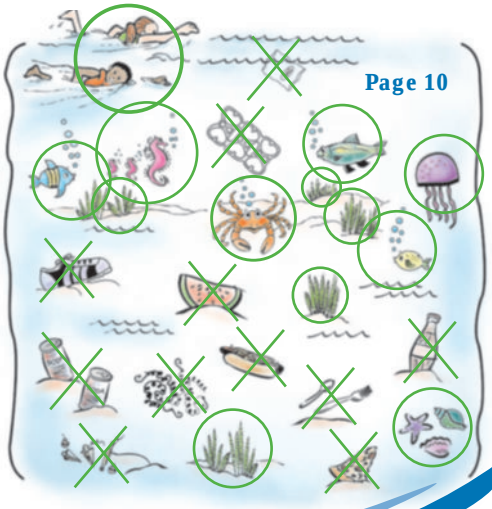
Page 9

Climb up on the boat!

Blow your whistle!

Yell for help!

Page 10



Activity Answer Guide

Page 11

1. save
2. buddy
3. adult
4. canal
5. jacket
6. afloat
7. whistle
8. above
9. head
10. law

Page 12

d	a	s	w	i	m	o	t	r	e	s	c
o	p	r	a	c	t	i	c	e	b	o	f
w	s	x	t	c	a	l	m	s	p	c	l
n	t	l	e	a	r	n	b	c	e	a	o
s	r	o	r	y	d	g	t	u	z	b	a
t	e	c	h	n	i	q	u	e	a	u	t
r	a	i	p	s	b	l	c	y	s	d	y
e	d	s	f	o	g	h	a	i	a	d	m
a	h	e	l	p	o	h	m	k	f	y	i
m	t	s	k	i	l	l	c	k	e	f	d

Page 13

Which helper would you pick?
Answers will vary.

Draw yourself using the helper to rescue her.

Narratives will vary.

Page 14

Look for **dangers** before you into **leap** the water.

There may be rocks, logs, garbage, or hidden objects that could **injure** you. The water may also be deeper or more **shallow** than you think. For your **safety** never jump off **bridges**, rocks or cliffs and never swim in a **canal**!

Be responsible, only swim in an area marked for **swimming** and make sure a responsible adult or **lifeguard** is **watching**.

Safety message:

Before you jump, look out for...

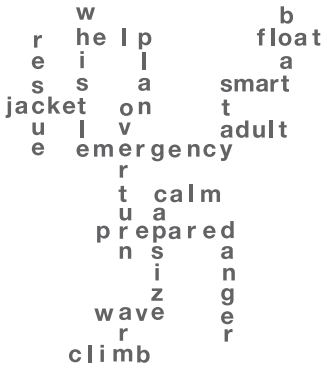
hidden obstacles under water.

Page 15

2. and 3. Answers will vary.
4. Answers will vary slightly. A foil boat with a wide and flat bottom will hold the most pennies.
5. Unevenly stacking pennies on one side, one half, or leaning up against one side will sink the boat.

   Pennies arranged evenly and balanced throughout the boat will balance the boat.
6. Pennies were unevenly placed on one side or one half of the boat. The load of pennies was unbalanced, making the boat tip over. Adding too many pennies will make the load too heavy and sink.
7. The boat with pennies arranged evenly and balanced throughout the boat, fit the most pennies. The boat remained stable because the weight of pennies was distributed evenly.
8. Load people and gear in the boat so the weight is evenly spread and balanced.

Page 16



Page 17

Page 18

Living Things:

girl	trees
boy	plants
starfish	ducks
fish	rabbit
crab	butterfly
bird	

Recycle or Throw Away:

girl	trees
boy	plants
starfish	ducks
fish	rabbit
crab	butterfly
bird	

Recycle or Throw Away:

shovels	sunglasses
pails	beach ball
sandals	towel

Page 19

List some fun things you can do in the water if you know how to swim:

Answers will very.

List two skills or safety tips that help keep you safe in or out of the water:

swim, float, wear a life jacket, swim where it is safe, etc.

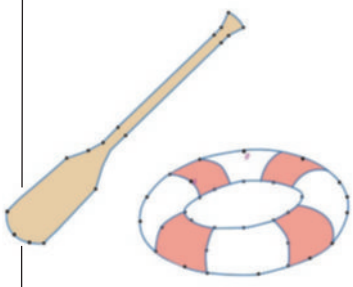
accident	an event occurring by chance or unintentionally
Backstroke	a style of swimming on your back
buoyant	able to float in or rise to the surface of a liquid
confidence	belief in one's own abilities; a feeling of trust
float	an upright position in water to stay afloat by calmly moving your arms and legs in wide downward circular motion
Freestyle stroke	a style of swimming, also know as the crawl, in which the swimmer faces downwards and moves their arms alternately in strokes while kicking
kickboard	a floating board used in swimming, by a beginner, to help keep the head up while practicing the flutter kick
lifeguard	an expert swimmer employed to keep other swimmers safe
reservoir	an artificial lake where water is collected as a water supply
responsible	able to choose for oneself between right and wrong
safety	freedom from danger
skill	a learned skill to stay on the surface of water without sinking
swift current	body of water that has a continuous onward movement
tread water	the ability to use one's knowledge effectively in doing something

Page 20

1. CO_2 (air) tank, wet suit, mask
2. head gear, knee & elbow pads, gloves, padded pants
3. life jacket, sunscreen
4. helmet / head gear, teeth and shin guards, gloves, padded shoulder gear
5. helmet, protective clothing, shoes, gloves
6. hard hat, safety glasses / goggles, rubber gloves, work boots, safety harness
7. combat vest, clothing, and boots; combat helmet and protective eyewear; combat pack and weaponry
8. eye and face safety shield helmet; fire-resistant gloves, clothing, and shoes; ear muffs or plugs
9. hard hat, safety glasses / goggles, work gloves, work boots, ear plugs

Other sport, job, or activity answers will vary.
Life jacket designs and styles will vary.

Page 21

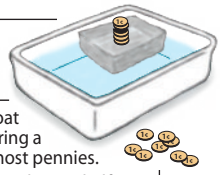


oar life preserver

Page 22

o	a	u	n	d	e	r	c	u	r	r	e	n	t	a	s	c	q
b	s	c	r	a	p	e	e	f	r	o	c	k	s	y	l	t	h
r	c	u	r	r	e	n	t	s	c	a	n	a	l	u	i	l	a
e	g	a	r	b	a	g	e	s	s	o	p	a	t	b	p	a	z
a	t	d	e	b	r	i	s	g	e	r	l	e	r	c	p	f	a
k	s	h	a	l	l	o	w	u	a	a	t	d	o	a	e	c	r
a	h	b	z	a	r	d	c	h	r	s	e	n	u	e	r	l	d
b	r	i	d	g	e	s	s	u	i	s	t	m	b	g	y	i	s
m	h	i	d	d	e	n	t	c	t	n	a	e	l	a	r	f	a
w	a	v	e	s	r	i	l	l	e	g	a	l	e	l	d	f	r
m	l	i	t	t	e	r	k	i	n	j	u	r	y	p	a	s	e

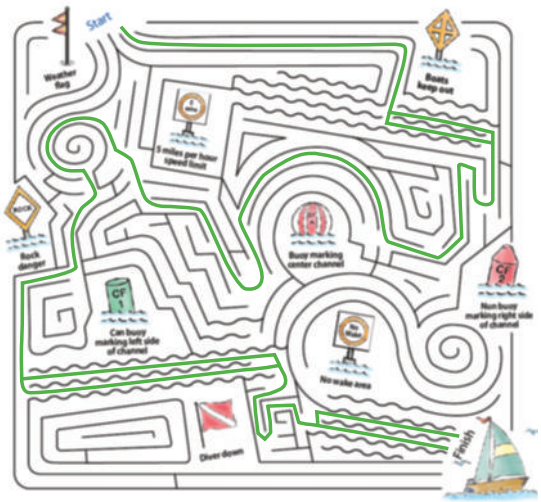
Page 23



2. and 3. Answers will vary.
   1: ___ 2: ___ 3: ___ 4: ___ 5: ___
4. Answers will vary slightly. A foil boat with a wide and flat bottom, covering a larger surface area, will hold the most pennies.
5. Unevenly stacking pennies on one side, one half, or leaning up against one side will sink the boat. Pennies arranged evenly and balanced throughout the boat will balance the boat.
6. Pennies were arranged on one side or one half of the boat. The load of pennies was unbalanced, making the boat tip over. Adding too many pennies will eventually make the load too heavy and sink.
7. Quantity and unbalanced coin placement will vary.
8. The boat with pennies arranged evenly and balanced throughout the boat, fit the most pennies. The boat remained stable because the weight of pennies was distributed evenly. The boat with coins will float if it weighs less than the amount of water it displaces.
9. (Yes) Carefully load people, gear, and items in the boat so the weight is distributed equally and balanced.

Page 24

If you see a rectangular flag with a diagonal stripe, what is below the water? A diver is below the water.



Page 25

Answers are listed in the sentence order they appear.

The Law: illegal, driver's license
Brain: judgment, risks
Reflexes: movements, brake
Boating Environment: multiply, temperature
Vision: peripheral
Balance: dizzy, boat

Page 26

Narratives will vary.

The Division of Boating and Waterways o ers FREE boating and safety curriculum and publications.

Our AquaSmart lesson plans and student activities align with California's curriculum standards for grades K-2, 3-5 and 6-8. To learn more, visit www.dbw.ca.gov/AquaSmart/curriculum.html

Aqua Smart

Wear a Life Jacket!

Today's life jackets may not be what you think—many are lightweight, comfortable, and come in many sizes, styles, and shapes for every person and every sport.

The U. S. Coast Guard requires recreational vessels (boats, canoes, rafts and standup paddleboards) to have a wearable life jacket for each person aboard. These life jackets must be:

- U. S. Coast Guard approved
- The proper size for the intended wearer
- In good and serviceable condition
- Properly stowed (readily accessible)

Under California law, **every child under 13 years of age** on a moving recreational vessel of any length must wear a Coast Guard-approved life jacket.

▶ Type 1 Offshore Life Jacket

▲ Type 2 Near-Shore Buoyant Jacket

▲ Child Life Jacket

▲ Vest-Type Life Jacket

▲ Manual Inflatable

▲ Belt Pack Inflatable

If a life jacket fits properly...

- It will help keep your head above the water.
- If it's too big, the life jacket will ride up around your face.
- If it's too small, it will not be able to keep your body afloat.
- Life jackets designed for adults will not work for children!

Try it on for size

- Check the manufacturer's label to ensure that the life jacket is a proper fit for your size and weight.
- Make sure the jacket is properly fastened.
- Hold your arms straight up over your head.
- Ask a friend to grasp the tops of the arm openings and gently pull up.
- Make sure the arm openings are snug and the life jacket does not ride up over your chin or face.
- For the best fit, try the life jacket in shallow water under safe and supervised conditions.

A life jacket can save your life, but only if you wear it!

For more information on life jackets and boating and water safety, visit:

www.dbw.parks.ca.gov

STATE OF CALIFORNIA
California Natural Resources Agency
California State Parks
DIVISION OF BOATING AND WATERWAYS
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