

See All You Can See

Activity Book



National
Eye
Institute

NATIONAL INSTITUTES OF HEALTH

NIH . . . Turning Discovery Into Health®


This Activity Book belongs to:

Hi everyone!

Join Emma and her brother, Jacob, on a healthy vision journey. Learn how important your eyes are, the different parts of the eyes, and what you can do to take care of them. Lots of activities in this book will show you different things about eyes. Together with Emma and Jacob, you'll pick up tips you can use to keep your eyes healthy. You can also share these tips with others so they can do the same.

So, come on! The things you'll need are a pen or pencil, colored pencils or markers, scissors, glue, tape, light cardboard or a file folder, your brain, eyes, and imagination. Let's meet Emma and Jacob as we prepare for our healthy vision journey.






Hi everyone!
I'm **Jacob** and this is
my sister, **Emma**.

And together, we're all
going to learn about our eyes,
what they can do, how important
they are to us, and how we can
protect them.

That's right, Jacob!
Plus, we're going to have
some fun. So, come on!
Let's get started.






We use our eyes from the time we open them in the morning until we close them at night. Our eyes help us see our favorite things, see where we're going, do our homework, and play sports. So, it's important that we take care of our eyes. How can you keep your eyes healthy?

That's right!
Sometimes eye diseases can be passed down in the family, so you need to make sure you take care of your eyes now to hopefully avoid trouble later.



You keep your eyes healthy by eating right, choosing a variety of fruits and vegetables, wearing eye protection when playing sports, washing your hands before putting them close to your eyes, and knowing your family history.






Emma and I like to draw pictures of our favorite things. One of my favorite places to go is the basketball court.

What's your favorite place to go?

Favorite Things for the Eyes To See

Directions: Draw your favorite place to go in the space below.




Jacob and I also like to write about our favorite things to look at. You saw Jacob's favorite place to go, but I like to look at the sky. How about you?

Directions: Finish the sentences below.

I like to use my eyes to look at _____.

My eyes let me see my favorite place to go, which is _____.

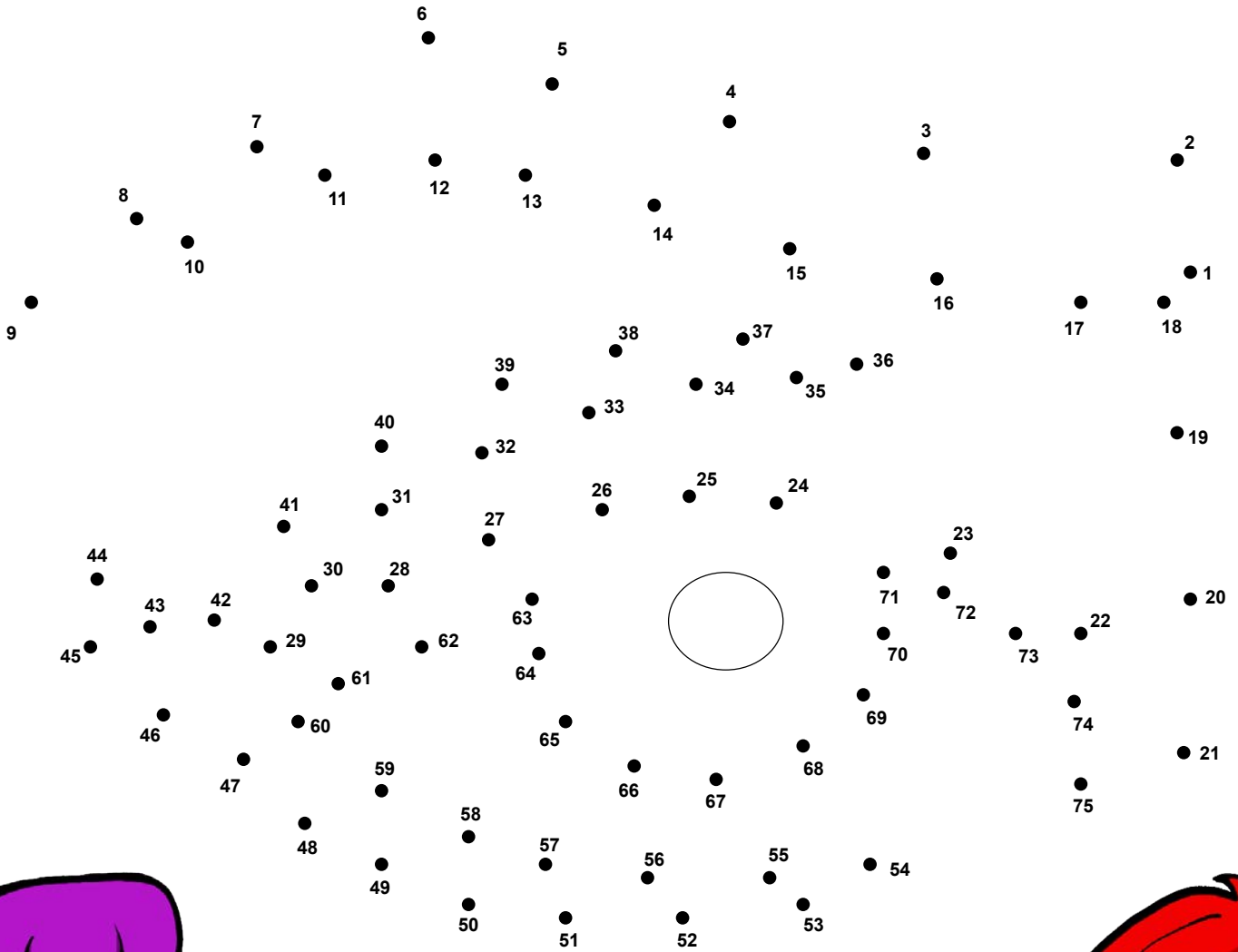
I am glad my eyes let me see my best friend, who is _____.



What do you like to look at?

Dotted Eye Challenge

Directions: Follow the dots in number order and see what appears.

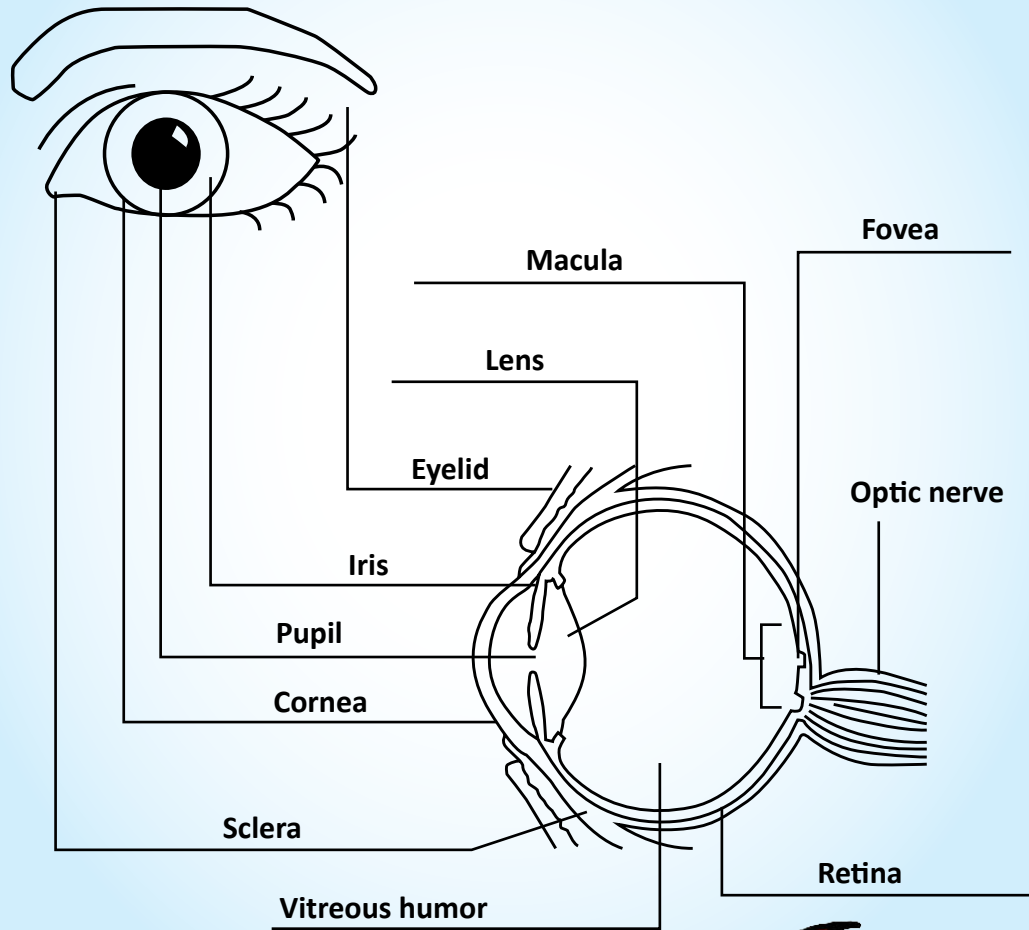


My, my, what could this be?
Connect the dots and you
will see!



There's a lot more to our eyes than
we can actually see. These next two activities
test our knowledge about the different parts of
our eyes—outside AND inside.

Eye Diagram



Macula (MACK-yoo-luh) is the small, sensitive area of the retina that gives central vision. It contains the fovea.

Lens (Lenz) is the clear part of the eye behind the iris that helps to focus light on the retina. It allows the eye to focus on both far and near objects.

Eyelid (I-lid) is the skin-covered structure that protects the front of the eye. It limits the amount of light that enters the eye and spreads tears over the cornea.

Iris (I-ris) is the colored part of the eye. It regulates the amount of light entering the eye.

Pupil (PYOO-puhl) is the opening at the center of the iris. The iris adjusts the size of the pupil and controls the amount of light that can enter the eye.

Cornea (KOR-nee-uh) is the clear outer part of the focusing system. It is located at the front of the eye.

Sclera (SKLEH-ruh) is the tough, white, outer coat of the eye.

Vitreous humor (VIT-ree-us HU-mur) is the clear gel filling the inside of the eye.

Fovea (FOH-vee-uh) is the center of the macula. It gives the sharpest vision.

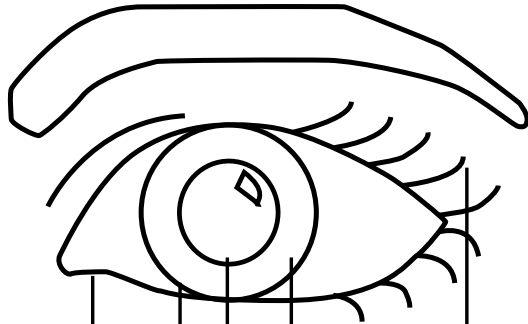
Optic nerve (OP-tic nurv) is the bundle of more than 1 million nerve fibers that carries visual messages from the retina to the brain.

Retina (RE-tin-uh) is the light-sensitive tissue lining the back of the eyeball. It sends electrical impulses to the brain.

Now that you can see how your eye looks on the inside and outside, complete the color-by-number diagram on the next page.

Color the Diagram of the Eye

Directions: Color the numbered part of the eye on this page according to the color of the terms below.



Color List:

- | | | |
|-----------|-------------------|-----------------|
| 1- Macula | 5- Pupil | 9- Fovea |
| 2- Lens | 6- Cornea | 10- Optic nerve |
| 3- Eyelid | 7- Sclera | 11- Retina |
| 4- Iris | 8- Vitreous humor | |

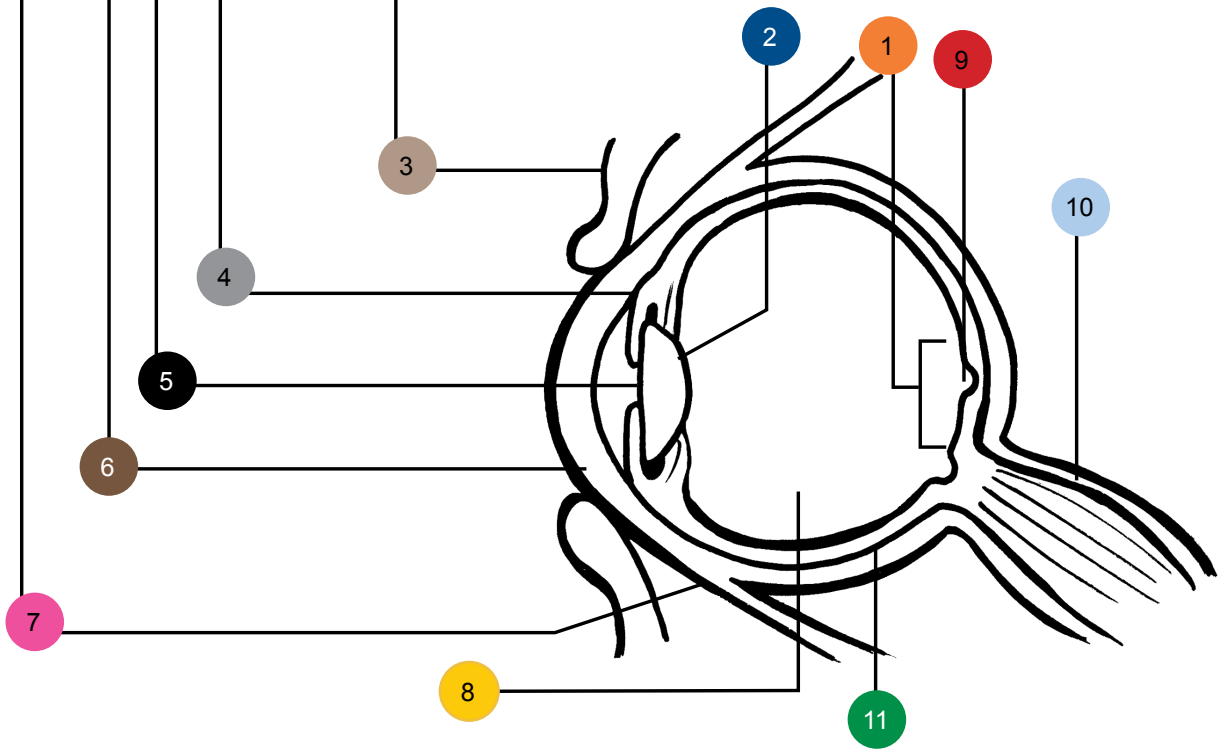
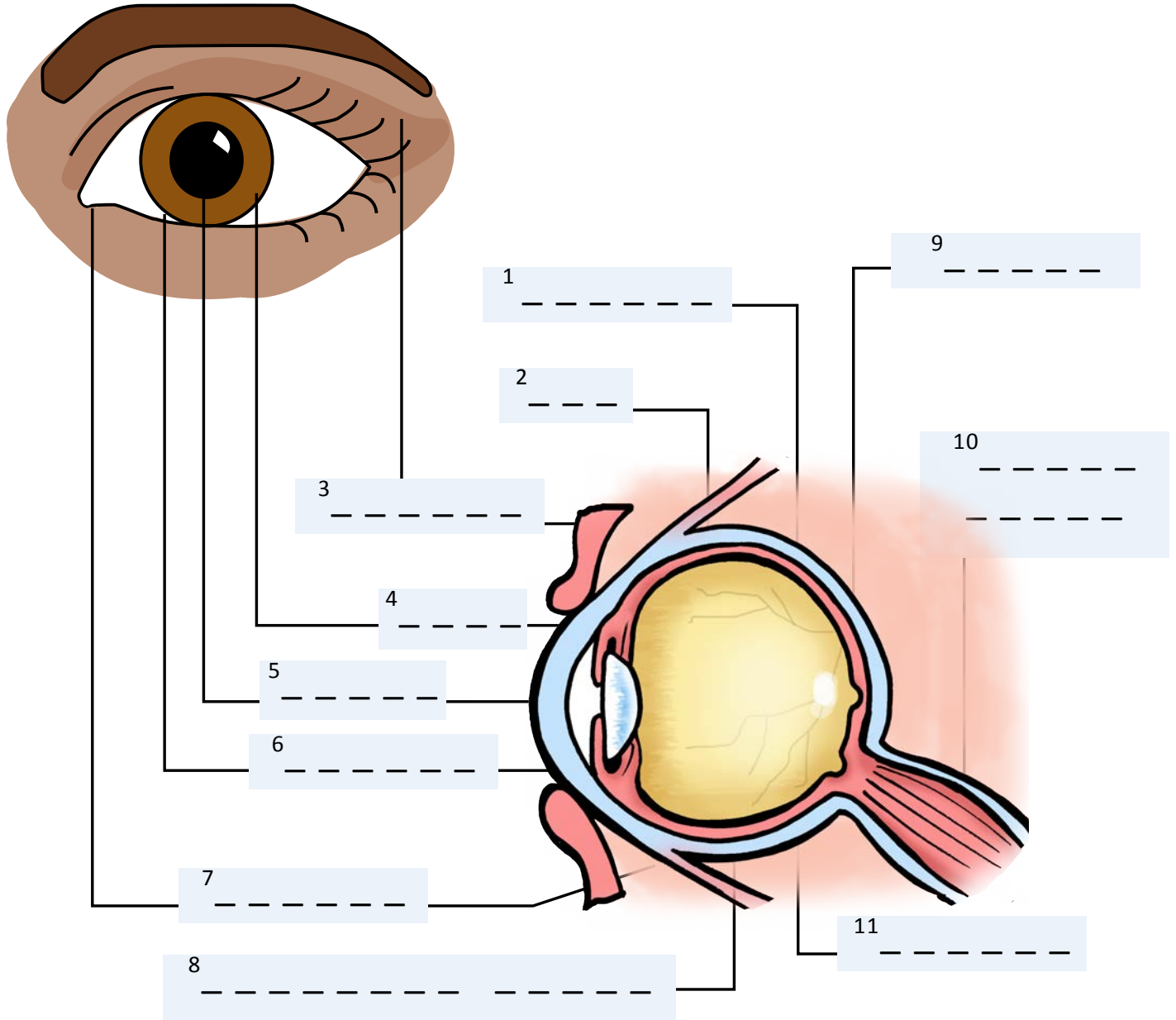


Diagram of the Eye With Matching Terms

Directions: Fill in the correct terms in the spaces below.



Can you fill in the spaces without looking back at the previous diagram or terms?

From Here to There

Directions: Follow each clue given to change one word into another word. Start with the word “blink” and end up with a new eye-related word at the end. At each step, use the new word formed from the previous set of clues and write the new word in the spaces provided.

Blink

Change the last letter of this word to a “d.”

Replace the “i” with an “o” and add an “e”
to the end of this word.

Remove the first and last letters of this word
and replace the “o” with an “a.”

Change the third letter in this word to an “i.”

Reverse the order of this word.

Make the last letter the first, switch
the “i” and “d”, and remove the “a”
in this word.

Add an “s” to the front and an “e” to the
end of this word.

Switch the last letter and the first letter
and add “ye” between the “e” and “l” in this word.


How many eye-related
words did you make?




Doodle




Sometimes we just want to have fun. Here is a Doodle page to be creative and express yourself.




We have been sharing the things your eyes help you see and hope you understand that taking care of your eyes is serious business!



In fact, you can be an important part of getting an adult you know to get an eye exam. Adults should visit the eye doctor to find out about eye diseases. For instance, glaucoma doesn't have any warning signs. If left untreated, glaucoma can cause permanent vision loss or blindness.



Also, if you or someone you know has diabetes and doesn't take care of the disease, diabetic eye disease can creep up, too! Be sure to visit the eye doctor to find out more about diabetic eye disease.



Taking care of our eyes is important. Don't forget to use these eye safety tips on the next page to help protect your eyes when you are playing.

Eye Safety Tips

Eye injury is just as serious as eye disease. Read the tips below to learn more about how to protect your eyes from injury.

- Remove trash from lawns to get rid of anything that could fly into your eyes while mowing.
- Wear safety goggles while mowing your lawn.
- Use guards on all power equipment to cut down on flying debris.
- Play baseball? Wear a sports eye guard and face guard attached to your helmet.
- Play basketball or soccer? Wear sports eye guards.
- Play hockey? Wear a face mask and sports eye guards.
- Avoid toys with sharp points, spikes, and dangerous edges.
- Avoid toys that fly and/or launch things into the air.
- Keep BB guns away from others and use them only with an adult.
- Don't play with fireworks.



What's Wrong With This Picture?

Directions: Circle all of the actions that could be dangerous to your eyes.





Search With All Your Eyes Word Search

Directions: Find the words from the word bank in the word search below.

E Y E W E A R P W R S S
E C T P D K P Z J R W E
Q L M E K H R H A O O H
K K G O M Z O E R G K S
N W O N P L T B T Q E A
I X G Q M M E Q V Y R L
L Q G J O Y C H E I R E
B P L A E I T L L D F Y
Y T E F A S I U I D M E
K P S B Q D O K G I M L
V O B Z S S N A U P L D
S E S S A L G N U S L Z

Word Bank:

BLINK
EYEBROW
EYELASHES
EYELIDS
EYEWEAR
GOGGLES

HELMET
PROTECTION
SAFETY
SUNGLASSES
TEARS



Some words just jump out at you. Others are hiding!

Spot the Difference

Directions: Look at the pictures to the right. There are 10 differences between them. Color the differences between the two pictures.

Whoa, they look the same to me, but they're not. Compare both pictures to check out who's protecting their eyes.



Eye Working Word Scramble

Directions: Look carefully at the jumbled words below and try to unscramble as many words as possible.

siri _____

pulpi _____

necora _____

dileye _____

eralcs _____

vitsouer homur _____

rniaet _____

salyehe _____

nsle _____



If you are having a hard time unscrambling the words, look back at the word banks on the other pages to see if any of the words look familiar.

Eye Motions

Directions: Match the expressions below to the correct facial expression by drawing a line from the words to the faces that match.

Sadness

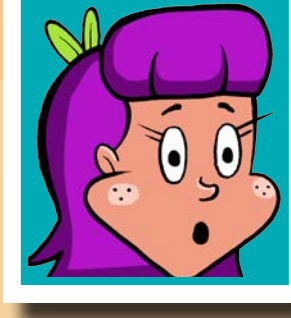
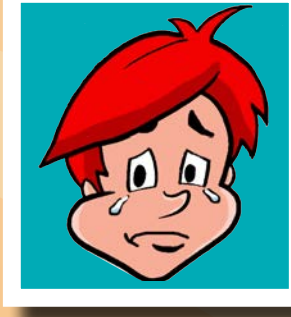
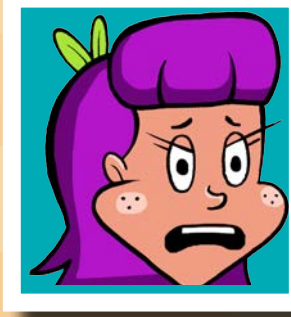
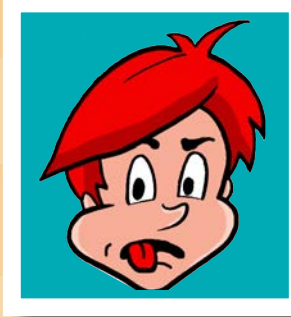
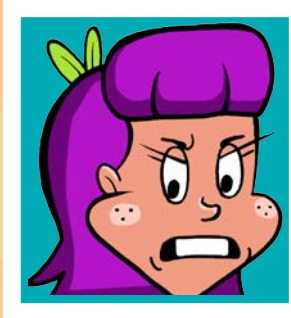
Joy


Anger

Fear


Disgust

Surprise







In addition to keeping your eyes safe while you play, you need to pay attention to any changes in how you see. If you're having trouble with your eyes, like blurry vision, tell an adult so you can visit the eye doctor.



Your family and friends are here to help keep every part of you healthy. That includes your eyes!



There are always things you can do to help keep your eyes safe. Did you know that the eye has its own "safety" devices?



For example: Eyebrows keep some light out of your eyes. Eyelids and eyelashes help keep particles out of your eyes. Tears keep your eyes moist and wash away particles that get into your eyes. Blinking keeps your eyes from getting too dry.

First Aid Tips

1. If particles, like sand or dust, get into your eyes, don't rub! Immediately wash your eyes out with water.
2. If you get hit in the eye with a ball, rock, or elbow, gently put a cold compress on your eye for 15 minutes. This should make the swelling go down and relieve the pain. Have an adult take you to the doctor.
3. If an object like a stick or pencil gets stuck in your eye, do not pull it out. This is very serious! Have an adult put a loose bandage on your eye. Don't put any pressure on the object. Have an adult take you to the doctor immediately.
4. If a chemical from a class experiment, cleaning fluid, or battery acid splashes in your eye, wash your eye out with water for at least 10 minutes. Have an adult take you to the doctor immediately.



Although we have these great "safety" devices on our bodies, sometimes we still get things in our eyes. If something gets in your eye, remember these first aid tips above.

Mixed-Up Word Match

Directions: Write the letter next to the correct word for each statement.

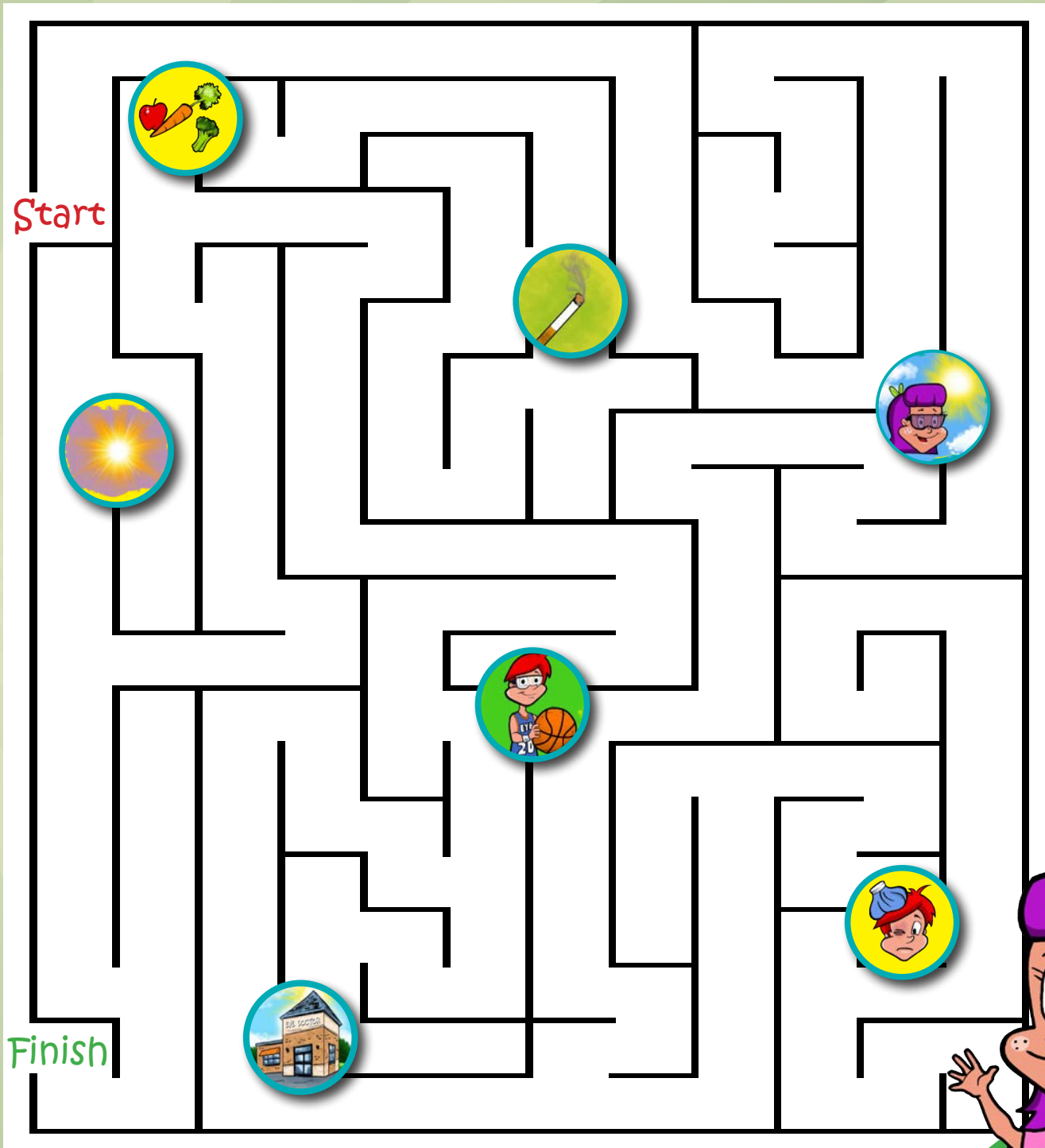
- | | |
|---------------------------|--|
| ___ 1. Optic Nerve | a. You should wear these whenever playing sports, operating a lawn mower, or working with tools. |
| ___ 2. Iris | b. This sport leads all sports in the number of eye injuries to young people aged 15–24. |
| ___ 3. Blinking | c. This is the name of the skin-covered structure that protects the front of the eye. |
| ___ 4. Color Blind | d. This is a bundle of more than 1 million nerve fibers that carries visual messages from the retina to the brain. |
| ___ 5. Glaucoma | e. This disease has no warning signs and can cause permanent vision loss or blindness, if left untreated. |
| ___ 6. Eyelid | f. This is the name for the colored part of the eye. |
| ___ 7. Owl | g. Doing this action keeps your eyes from getting dry. |
| ___ 8. Basketball | h. At night, this animal can see a mouse moving more than 150 feet away. |
| ___ 9. Protective Eyewear | i. This is a condition when people have trouble telling the difference between certain colors. |
| ___ 10. Eyelash | j. The fringe of hair edging the eyelid; they close to keep particles, like dust, out of your eyes. |

Start with matching the ones you know, then use your context clues to complete the rest. This eliminates guessing and you can get them right the first time.



Our A-Mazing Eyes Maze

Directions: Follow the maze through the correct healthy vision tips to complete your healthy eyes journey. Be sure to avoid unhealthy eye behaviors that will keep you from completing your journey.



We talked about some eye safety tips. Now use what you know to finish the maze. Remember that you want to avoid certain behaviors so your eyes stay healthy.

Which Eye Is Different From the Rest?

Directions: Circle the eye that is different from the other two eyes in each set below.



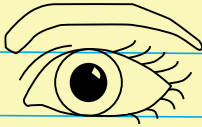

Have you ever seen a friend or family member whose pupils are really big?

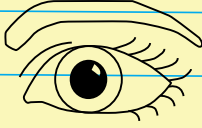

Well, in a dim room, the pupil dilates (opens wide) to allow in more light. The more open pupils are, the more light can enter the eyes to see.

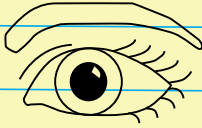
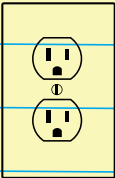


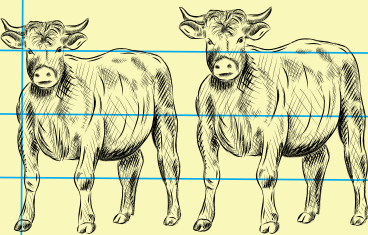
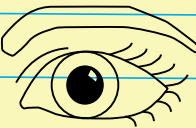
Eye-Quations

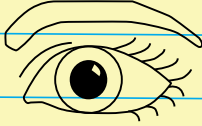

Directions: Solve the picture equations below to create words and phrases that contain the word "eye."

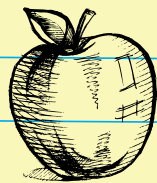

 + "of the" +  =

 +  =

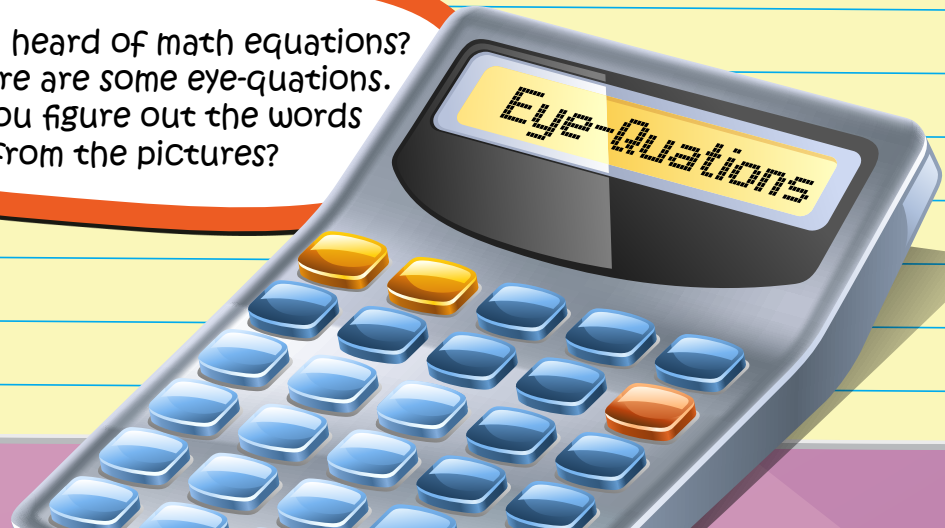
 +  =

 +  =

 +  =

 + "of my" +  =

Have you heard of math equations?
Well, here are some eye-equations.
Can you figure out the words
from the pictures?



A Day in the Park Mad Libs

Directions: Finish the story by filling in the blanks with the word you think best completes each sentence. The hints under the blanks will help you identify which part of speech belongs in the blank.

Today, _____ and I went to the park. We took along _____
balls to play _____. Our _____ made sure we had
_____ to wear when we played games. We wear them
every time we _____. All of our _____ were in the park, so we
chose sides to play a(n) _____ game of _____.

My team _____ by scoring _____ points. During the game,
_____ threw a _____ and it hit _____ in
the eye. If he/she hadn't had his/her protective _____ on, his/
her eye would have turned _____. We were _____ he/she was
wearing his/her _____. We had a _____ time playing _____,
but it started to _____, so we had to _____ all the way home.

Try reading the story and putting in funny words. Then complete the Mad Libs by filling in the most appropriate words that would describe how you would feel if this happened to you.



Healthy Vision Tips

In School:

- Walk, don't run, with sharp objects such as scissors, pens, pencils, and rulers.
- Use good lighting to avoid tiring your eyes when reading, writing, or surfing the Internet.
- Tell an adult if your eyes are bothering you.
- Wear proper eye protection when doing hobbies, chores, or school assignments that use chemicals.
- Wear sunglasses that block both UVA and UVB radiation from the sun.
- Never look directly at the sun.



In Sports:

- Wear a helmet when biking, skateboarding, or roller-skating.
- Wear proper eye protection when playing sports.

It is important that you take care of your eyes all the time! Here are some healthy vision tips to help you take care of your eyes in school and while you are playing sports.

Always protect your eyes and keep them healthy. They're the only eyes you'll ever have.



Louis Braille

⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠








French inventor and teacher, Louis Braille, created this method in 1825. Braille was blind. While at school for the blind in Paris, he met Charles Barbier. Barbier had created a system for writing for the blind where sample messages coded in dots were imprinted on cardboard. In 1825, Braille started adapting this system to create the writing system we now know as Braille.






The dots under Louis Braille's name above are actually from the alphabet called Braille. Braille is a method widely used to read and write by people who are visually impaired. Each letter of the alphabet is represented by a different set of dots.






Coded Message Game






Directions: Use the Braille code below to find out a popular saying about your eyes!







Braille Code






 a b c d e






 f g h i j






 k l m n o











 p q r s t












 u v w x y z



























Hey, I've seen raised dots like these next to the buttons for floor numbers in the elevator, and under restroom signs. So that's Braille? Cool!



Check out the activity above. See if you can decode the message.

Gear Up!

Directions: Color the pictures on this page and the next page. Use the colors of your favorite professional sports teams or your own sports teams to make it more fun.



Make sure you color in the protective eye wear!



Whenever you play sports, you should wear eye protection.



Journal Page

Directions: Write a letter to a family member or friend below, sharing the things you learned and encouraging them to protect their eyes.
Look back through the activities and include some of the ways they can keep their eyes safe.

Dear _____,

Sincerely,

Sign your name here



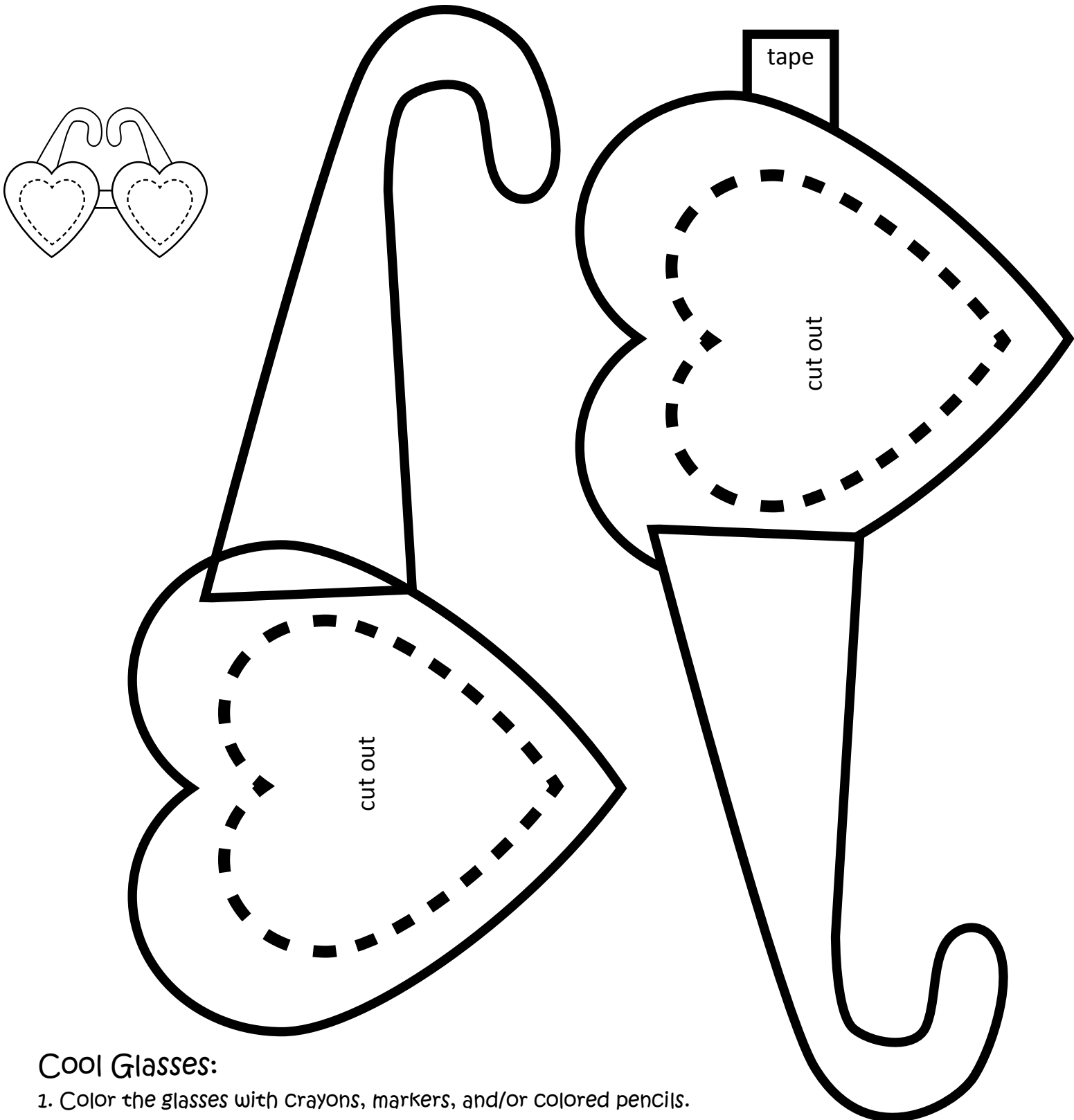
We learned a lot about eyes, healthy vision, and protecting our eyes!

Can you remember three things that you learned about your eyes and healthy vision from this activity book?



Create Your Own Cool Glasses

Directions: Color the glasses below, then cut out and assemble as directed.

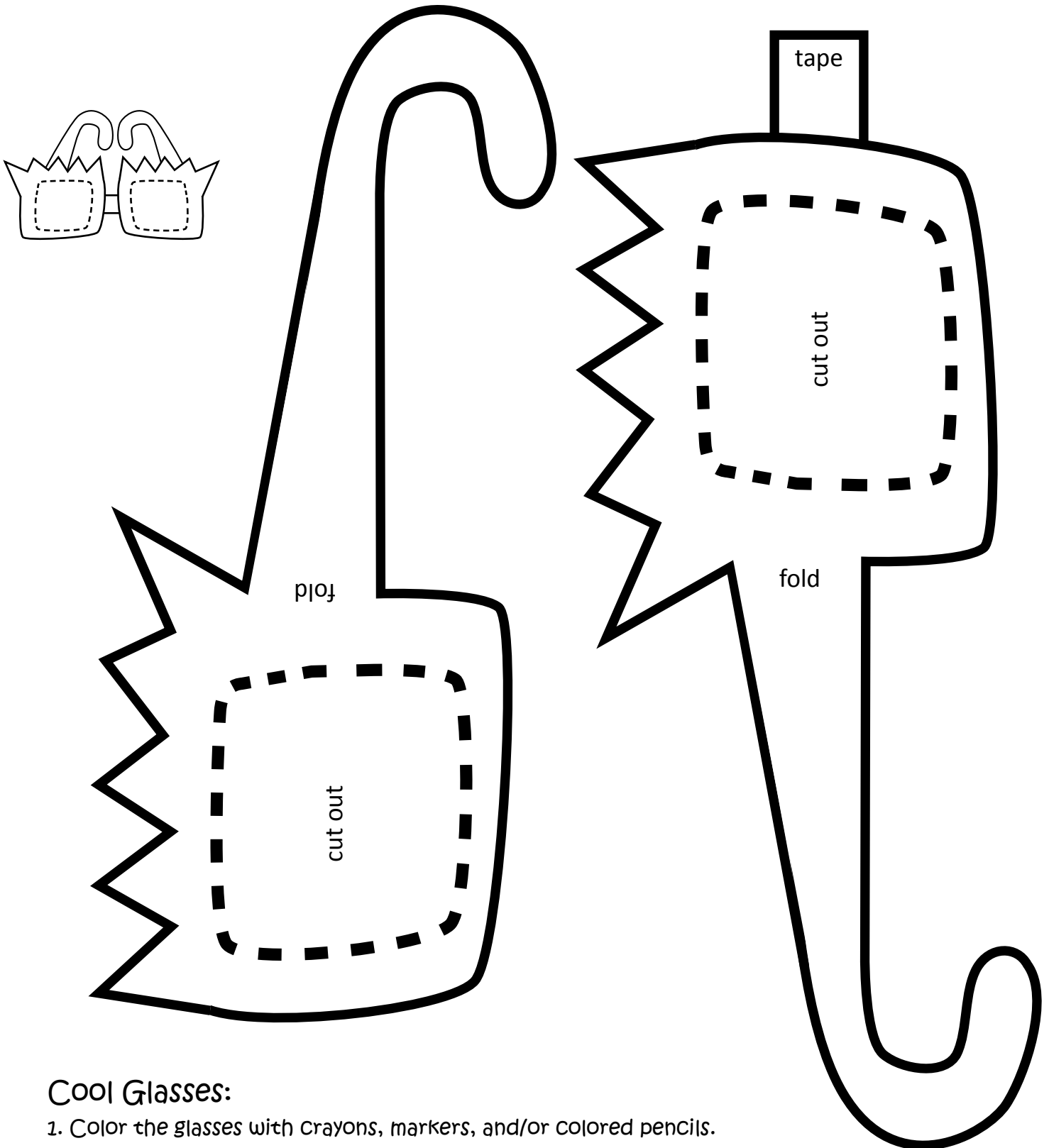


Cool Glasses:

1. Color the glasses with crayons, markers, and/or colored pencils.
2. Glue paper onto thin cardboard, such as a recycled file folder.
3. Cut out glasses on dotted line area and outer edge.
4. Tape together in the middle. Fold at ears and wear your cool glasses.

Create Your Own Cool Glasses

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Cool Glasses:

1. Color the glasses with crayons, markers, and/or colored pencils.
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Glossary

Braille (breyl) is the system of writing for the blind that uses characters made up of raised dots.

The **cornea (KOR-nee-uh)** is the clear outer part of the focusing system that is located at the front of the eye.

Diabetic eye disease (dahy-uh-bet-ik ahy dih-zeez) is a group of eye problems that people with diabetes may get. All of these eye problems can lead to vision loss or blindness. Diabetic eye disease includes diabetic retinopathy, cataract, and glaucoma.

Dilate (dahy-leyt) is the widening or enlargement of the pupil so that the retina is more visible.

Eyelash (I-lash) is the fringe of hair edging the eyelid; they close to keep particles, like dust, out of your eyes.

The **eyelid (I-lid)** is the skin-covered structure that protects the front of the eye. It limits light entering the eye and spreads tears over the cornea.

The **fovea (FOH-vee-uh)** is the center of the macula, which gives the sharpest vision.

Glaucoma (Glaw-KOH-muh) is called the “sneak thief of sight” because it does not give any warning signs of loss of vision. It is a group of diseases that damage the optic nerve and can cause vision loss and blindness. Glaucoma can be treated with medication, lasers, and/or surgery.

The **iris (I-ris)** is the colored part of the eye; it regulates the amount of light entering the eye.

The **lens (LENZ)** is the clear part of the eye behind the iris that helps to focus light on the retina. It allows the eye to focus on both far and near objects.

The **macula (MACK-yoo-luh)** is the small, sensitive area of the retina that gives central vision. It contains the fovea.

The **optic nerve (OP-tic nurv)** is the bundle of more than 1 million nerve fibers that carry visual messages from the retina to the brain.

The **pupil (PYOO-pul)** is the opening at the center of the iris. The iris adjusts the size of the pupil and controls the amount of light that can enter the eye.

The **retina (REH-tin-uh)** is the light-sensitive tissue lining the back of the eyeball. It sends electrical impulses to the brain.

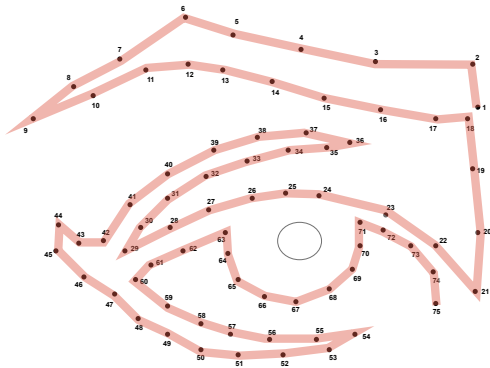
The **sclera (SKLEH-ruh)** is the tough, white outer coating of the eye.

UV means **Ultraviolet (uhl-truh-vahy-uh-lit)**. The sun produces radiation that we see as light. But it also produces invisible radiation called UV or ultraviolet radiation. Ultraviolet radiation may contribute to the development of eye diseases and conditions such as macular degeneration and cataract.

The **vitreous humor (VIT-ree-us HU-mur)** is the clear gel that fills the inside of the eye.

Answer Key

Dotted Eye Challenge



Color the Diagram of the Eye

- | | |
|-----------|-------------------|
| 1. Eyelid | 6. Lens |
| 2. Iris | 7. Vitreous Humor |
| 3. Pupil | 8. Optic Nerve |
| 4. Cornea | 9. Retina |
| 5. Sclera | 10. Eyelash |

Diagram of Eye With Matching Terms

- | | |
|-----------|-------------------|
| 1. Iris | 5. Vitreous humor |
| 2. Pupil | 6. Retina |
| 3. Cornea | 7. Lens |
| 4. Sclera | 8. Optic Nerve |

From Here to There

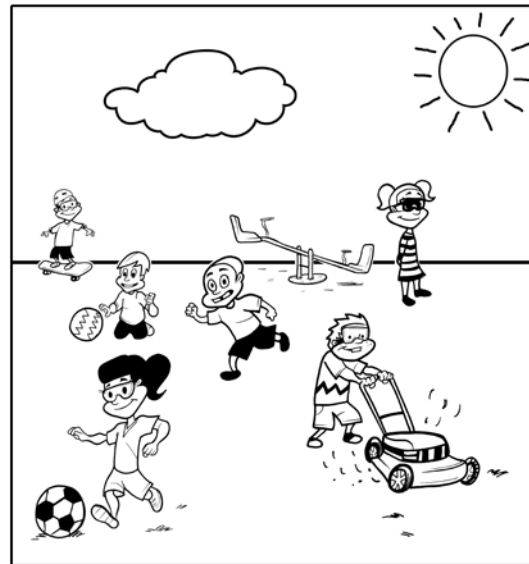
- Change the last letter of this word to a "d." - [blind]
- Replace the "i" with an "o" and add an "e" to the end of this word. - [blonde]
- Remove the first and last letter of this word and replace the "o" with an "a." - [land]
- Change the third letter in this word to an "i." - [laid]
- Reverse the order of this word. - [dial]
- Make the last letter the first, switch the "i" and "d", and remove the "a" in this word. - [lid]
- Add an "s" to the front and an "e" to the end of this word. - [slide]
- Make the last letter the first and the first letter the last and add "ye" between the "e" and "l" in this word. - [eyelids]
- How many eye-related words did you make - [2]

How many other words - [6]

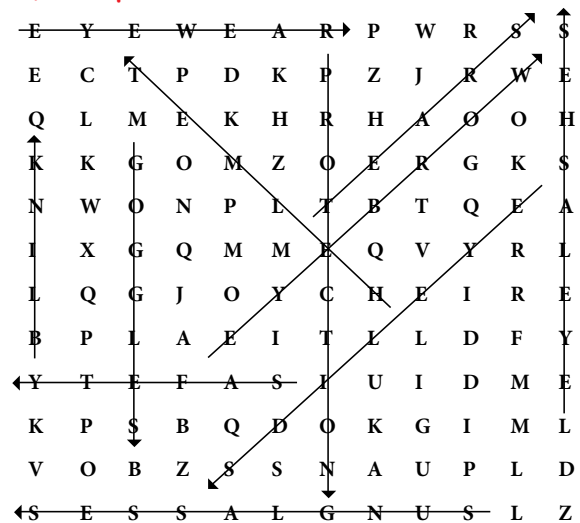
What's Wrong With This Picture?

- Looking directly at the sun
- Mowing without goggles
- Playing with fireworks
- Putting sand in someone's face (without protection)
- Playing baseball without protective eyewear

Spot the Difference



Word Search



Answer Key

Eye Working Word Scramble

Iris
Pupil
Cornea
Eyelid
Sclera
Vitreous humor
Retina
Eyelash
Lens

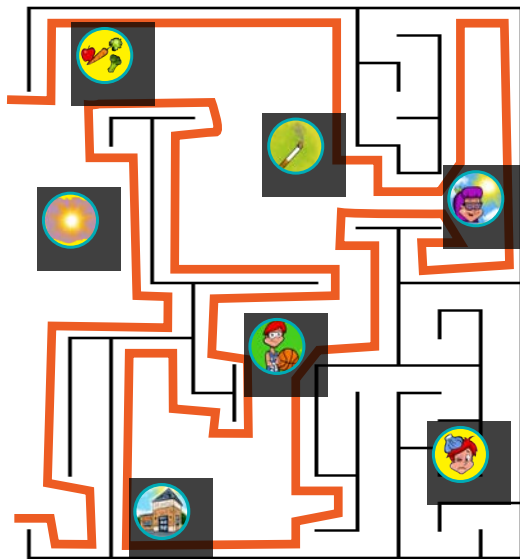
Eye Motions

Joy, anger, fear, disgust, surprise, sadness

Mixed-Up Word Match

- | | |
|------|-------|
| 1. D | 6. C |
| 2. F | 7. H |
| 3. G | 8. B |
| 4. I | 9. A |
| 5. E | 10. J |

Our A-Mazing Eyes Maze



Which Eye Is Different From the Rest?

Row 1- 2nd eye
Row 2- 1st eye
Row 3- 3rd eye
Row 4- 3rd eye

Eye-Quations

Eye of the Tiger
Eye Ball
Eye Socket
Bull's Eye
Eye Glasses
Apple of My Eye

A Day in the Park Mad Libs

Possible answers are:

1. Jacob, Isabella, Emma
2. hard, soft, orange
3. baseball, basketball, softball
4. mother, father, sister
5. safety goggles, helmets
6. play, start
7. helmets, balls, friends
8. quick, short, long
9. baseball, basketball, hockey
10. won
11. 2, 3, 10
12. Jacob, Isabella, Emma
13. ball, bat, stick
14. Emma, Veronica, Dave
15. head, face, eye
16. eyewear, goggles
17. blue, black, purple
18. happy, relieved, excited
19. safety goggles, glasses
20. great, exciting, fun
21. baseball, basketball, hockey
22. rain, storm, snow
23. run, jog, walk

Decoding Your Eyes

The eyes are the windows to the soul.

EYE KNOW IT!

Award certifies that



successfully completed the

See All You Can See Activity Book.



Signature of Adult

Date

Thanks for joining us
on our journey and
completing the
Activity Book!





For more information and to order other healthy vision resources, visit <http://www.nei.nih.gov/activitybooks>.

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