



# Karst Geology Pre-visit

## Classroom Activity

### Brief Synopsis:

*Students will first become familiar with karst vocabulary words by finding them in the Word Find puzzle. Students will then learn the definitions of these same words by using them in the Crossword Puzzle. If more time and computer access to the internet is available there are movies, articles, and quizzes listed as links that present information on the water cycle, sinkholes, and groundwater contamination.*

**Ages:** Designed for 5th-8th grade

**Time Considerations:** Approximately 1 hour (30 minutes for the word find and crossword puzzle and 30 minutes for the online activities.)

#### Materials:

- Pencils
- Copies of the word find and crossword puzzle
- Access to the internet (optional)

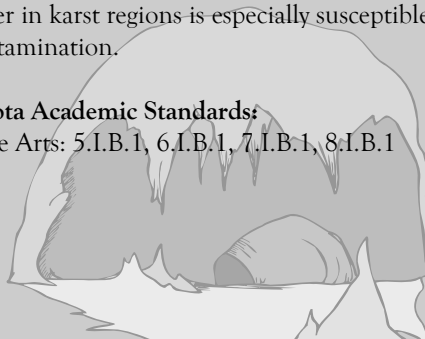
**Vocabulary:** Cave, Contaminate, Erosion, Flint, Geology, Groundwater, Hydrology, Igneous, Karst, Limestone, Metamorphic, Permeable, Sandstone, Sediment, Sedimentary, Sewage, Shale, Sinkhole, Topography, Watershed

#### Outcomes:

1. Students will become familiar with karst geology vocabulary.
2. Students will learn the definitions of karst and general geologic terms.
3. Students will learn how sinkholes form and how water in karst regions is especially susceptible to contamination.

#### Minnesota Academic Standards:

Language Arts: 5.I.B.1, 6.I.B.1, 7.I.B.1, 8.I.B.1



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### Set-up:

During the *Karst Geology* class at Eagle Bluff, your students will be learning about a specific type of geology dealing with limestone and other easily dissolved types of rocks. To help your students begin to understand basic karst vocabulary, you will need to photocopy the attached word find and crossword puzzle pages for each student. If students have computer access to the internet there are several other activities listed with more information on karst, sinkholes, and ground water contamination.

### Activity 1: Puzzled?

**Background:** Every area of study has its own unique vocabulary, and karst geology is no exception. During the *Karst Geology* class at Eagle Bluff students will study the **sedimentary** rocks such as **limestone, sandstone, shale, and flint**. Other terms such as **erosion, contaminate, groundwater, permeable, sediment, and sewage** will be discussed as they relate to karst regions. This pre-activity will familiarize students with those vocabulary terms.

**Procedures:** Distribute worksheets to each student. Have the students complete the Word Find first. Next the students can start the Crossword Puzzle using the vocabulary words from the Word Find.

#### Assessment:

- Which vocabulary words were already familiar to the students?
- Which vocabulary words are new?
- Ask the students to use the vocabulary words in a sentence.

#### Extensions:

- Have students scramble the letters in each vocabulary word for another student to unscramble.

## Activity 2: Exploring Karst Online

**Background:** During the *Karst Geology* class at Eagle Bluff students will be able to tour the karst features of the area. By viewing “Karst: The Movie”, and “Sinkhole: The Movie”, students will get a pre-view of some of the features they will see during class. Students will also get introduced to how karst features can make it easier for contaminants to enter the local water ways.

**Procedures:** Direct students to go to the site: <http://www.watersheds.org/earth/karst.htm> Have the students play “Karst: The Movie” and “Sinkhole: The Movie”

**Assessment:** Go to the site <http://www.watersheds.org/teacher/karstquiz.htm> and print off copies off the Karst Movie Quiz for each student. After the students have viewed and interacted with “Karst: The Movie” hand out the quiz.

**Extensions:** Challenge students to make their own Karst movie.

## Activity 3: Searching Out Sinkholes

**Background:** In Karst regions where limestone is easily dissolved by rainwater craters on the surface may form when topsoil is washed down into caves and cracks underground. These sinkholes can vary from large craters to shallow depressions.

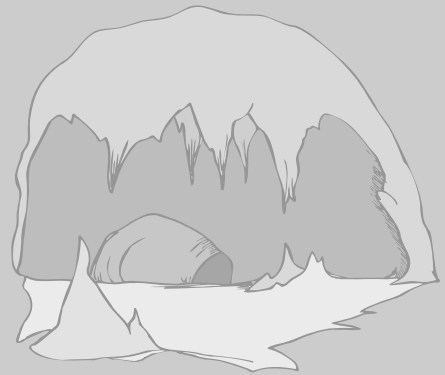
**Procedures:** Direct students to go to the site: <http://ga.water.usgs.gov/edu/sinkholes.html> and read the article on sinkholes.

**Assessment:** At the end of the article have the students take true or false quiz.

**Extensions:** Encourage students to look for sinkholes around the city of Fountain as they approach Eagle Bluff.

## Teacher Tips

- Add Karst vocabulary to the classroom by having students make posters explaining terms with words and pictures. Display posters in easily viewed areas.
- Have a new Karst term and definition written on the chalkboard each week.
- Students can construct their own geologic flashcards.
- Ask students to bring in news articles that pertain to Karst and look up any new words.



## Additional Resources

[http://www.epa.gov/safewater/kids/flash/flash\\_watercycle.html](http://www.epa.gov/safewater/kids/flash/flash_watercycle.html)

Basic animated water cycle with text and voice over.

<http://www.watersheds.org/teacher/puzzle.htm>

Additional word search with karst vocab

# Worksheet: Karst Geology Word Find

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

CAVE  
CONTAMINATE  
EROSION  
FLINT  
GEOLOGY  
GROUNDWATER  
HYDROLOGY

IGNEOUS  
KARST  
LIMESTONE  
METAMORPHIC  
PERMEABLE  
SANDSTONE  
SEDIMENT

SEDIMENTARY  
SEWAGE  
SHALE  
SINKHOLE  
TOPOGRAPHY  
WATERSHED

# Answer Key: Karst Geology Word Find

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

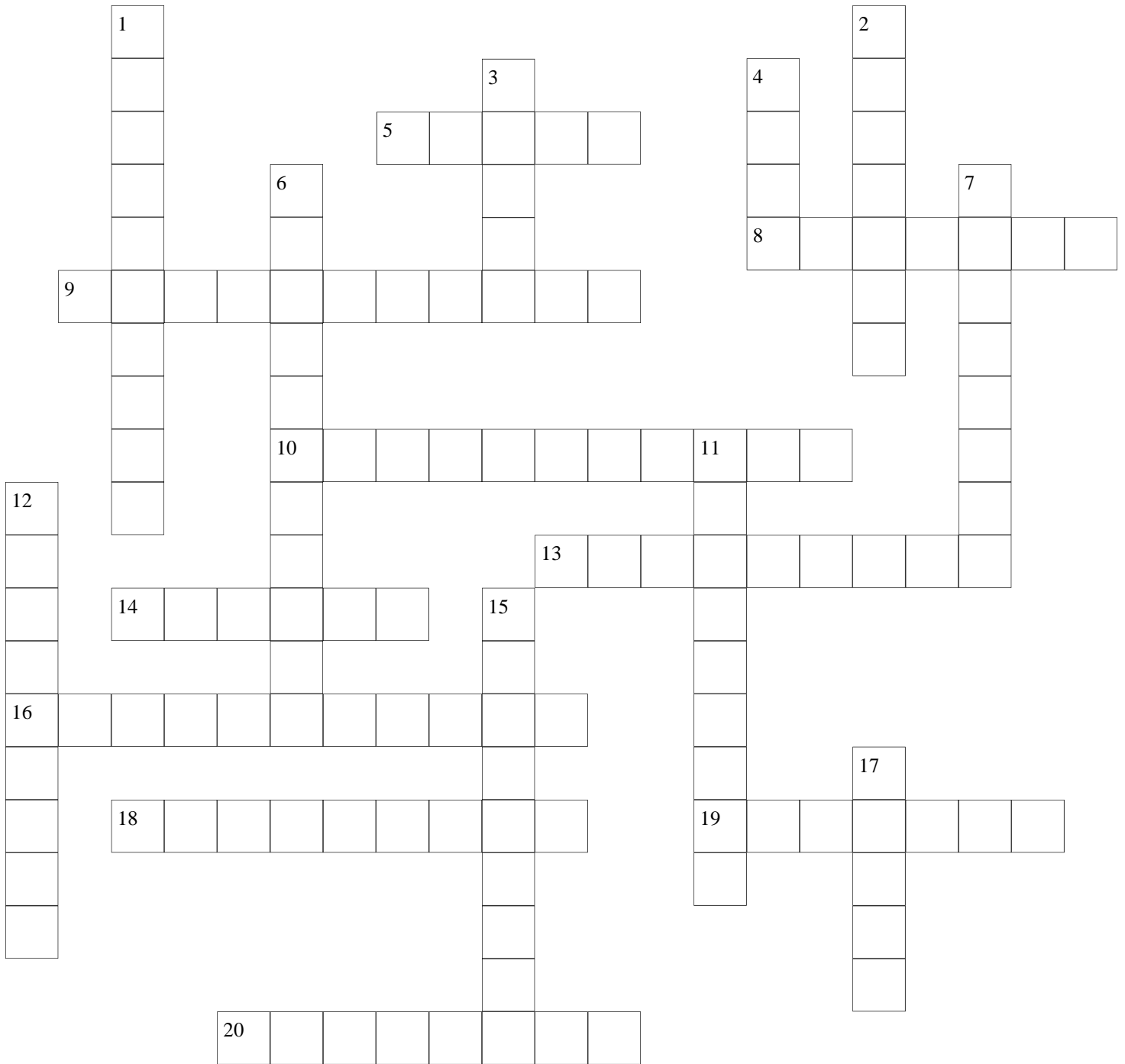
CAVE  
CONTAMINATE  
EROSION  
FLINT  
GEOLOGY  
GROUNDWATER  
HYDROLOGY

IGNEOUS  
KARST  
LIMESTONE  
METAMORPHIC  
PERMEABLE  
SANDSTONE  
SEDIMENT

SEDIMENTARY  
SEWAGE  
SHALE  
SINKHOLE  
TOPOGRAPHY  
WATERSHED

Student Name: \_\_\_\_\_

# Worksheet: Karst Geology Crossword Puzzle



# Karst Geology Crossword Puzzle Clues

## ACROSS

**5** An impervious sedimentary rock made from compressed mud.

**8** How the Earth's surface is worn away by rain, glaciers, wind, and waves.

**9** The water beneath the Earth's surface that supplies springs and wells.

**10** A rock type formed from extreme heat and or pressure.

**13** Rock that is formed of grains of quartz held together with a cementlike substance.

**14** Water and waste material carried away in sewers.

**16** A rock type formed from chemical precipitation or sediment and cementation of mineral grains.

**18** The area of land that drains into a river, river system, or lake.

**19** The study of the physical structure, composition, and development of the Earth.

**20** Solid material that settles to the bottom of a liquid.

## DOWN

**1** The shape and height or depth of the surface features of a place, area, or region.

**2** A rock type formed from cooling magma.

**3** An area where limestone is common and there are many caves and sinkholes.

**4** A natural hollow in the Earth, especially one with an opening in a hillside or cliff.

**6** To make water, air, or land impure or unusable by adding harmful or waste material.

**7** A depression or cavity formed in the Earth when underlying material collapses.

**11** A science dealing with the properties, distribution, and circulation of water.

**12** Calcium magnesium carbonate, the most common rock in the Eagle Bluff watershed.

**15** The description for a rock type that water or other liquids can move through.

**17** A hard, compact variety of quartz found in limestone.

# Answer Key: Karst Geology Crossword Puzzle

## ACROSS

**5** An impervious sedimentary rock made from compressed mud. *Shale*

**8** How the Earth's surface is worn away by rain, glaciers, wind, and waves.

*Erosion*

**9** The water beneath the Earth's surface that supplies springs and wells.

*Groundwater*

**10** A rock type formed from extreme heat and or pressure. *Metamorphic*

**13** Rock that is formed of grains of quartz held together with a cement-like substance. *Sandstone*

**14** Water and waste material carried away in sewers. *Sewage*

**16** A rock type formed from chemical precipitation or sediment and cementation of mineral grains.

*Sedimentary*

**18** The area of land that drains into a river, river system, or lake. *Watershed*

**19** The study of the physical structure, composition, and development of the Earth. *Geology*

**20** Solid material that settles to the bottom of a liquid. *Sediment*

## DOWN

**1** The shape and height or depth of the surface features of a place, area, or region. *Topography*

**2** A rock type formed from cooling magma. *Igneous*

**3** An area where limestone is common and there are many caves and sinkholes.

*Karst*

**4** A natural hollow in the Earth, especially one with an opening in a hillside or cliff. *Cave*

**6** To make water, air, or land impure or unusable by adding harmful or waste material. *Contaminate*

**7** A depression or cavity formed in the Earth when underlying material collapses. *Sinkhole*

**11** A science dealing with the properties, distribution, and circulation of water. *Hydrology*

**12** Calcium magnesium carbonate, the most common rock in the Eagle Bluff watershed. *Limestone*

**15** The description for a rock type that water or other liquids can move through. *Permeable*

**17** A hard, compact variety of quartz found in limestone. *Flint*