Sample Annotated Lesson Plan

(137) Hot Springs and Geysers

Podcasts are between 12–18 minutes.
Podcast Length: 15:28

All podcasts feature a character value discussion.
Character Value: Approaching obstacles

A health literacy message is discussed during the first few minutes of the podcast.
Health Message: Toxins

Synopsis

Today's Walking Classroom discusses hot springs and geysers, two related types of hydrothermal activity found in areas near volcanoes. Hydrothermal comes from two Greek words, *hydro* meaning water and *therme* meaning heat. Hot springs form when water that has risen to the surface of the earth collects in heated pools while geysers shoot fountains of water and steam into the air. Hydrothermal activity occurs all over the world, but is observed mostly in Iceland, New Zealand, and Yellowstone National Park.

Two or three specific learning goals for the lesson that use Marzano/Bloom taxonomy

Objectives

- Understand how hot springs and geysers are formed.
- Compare and contrast geysers and hot springs.
- Explain where hot springs and geysers are found and why.

Procedure is the same for all walks. Unfamiliar vocabulary is introduced before walking.

Procedure

If you want to compare student comprehension before and after listening, administer the Comprehension Quiz before doing anything related to the podcast. Retest after walking.

1. Review key vocabulary (included definitions are limited to the context of today's podcast).
   - **toxins (noun):** waste products produced by cells in the body
     *When we eat processed and refined foods, the body releases many **toxins**.*
   - **hydrothermal (adjective):** having to do with hot water
     *Geysers and hot springs are two types of **hydrothermal** activity.*
   - **magma (noun):** rock within the earth that is so hot it has turned to liquid
     ***Magma** is responsible for heating the water in geysers and hot springs.*

Simple question to jump-start students' background knowledge.

2. Build background by asking students, "Have you ever seen a hot spring or geyser? What makes them special?"
3. Allow time for discussion.
4. Podcast preview: "Have you ever heard of Old Faithful? Today we're going to learn more about how, why and where hot springs and geysers form. Ready? Let's go!"
5. Walk!

Questions for Thought and Discussion

Upon return to the classroom, discuss the main ideas and content from the podcast using the questions and suggested answers below.

Questions for all podcasts will follow the same structure: main idea, connections, and character value.

1. **What were some of the big ideas of this podcast?**
   - ✓ *A geyser is hydrothermal activity where a fountain of water shoots into the air.*
   - ✓ *Geysers and hot springs only form in regions where there has been volcanic activity.*
   - ✓ *Hot springs occur more slowly and less dramatically than geysers because the steam has an open path to travel, so pressure doesn't build up.*

Connection to everyday life:

2. **Hot springs and geysers only occur in specific locations. What specific conditions are needed to create each of them?**
   - ✓ *Hot springs and geysers only occur in regions where there has been volcanic activity. The underground water gets heated by magma.*

Focus on character value:

3. **While hot springs occur gradually and peacefully, geysers appear dramatically and forcefully. Although very different, both are beautiful.**
   a. **What is the benefit of approaching things with patience and taking your time?**
      - ✓ *Suggestion: By being patient and approaching situations slowly, you have an opportunity to think through a situation and decide the best way to respond and move forward.*
   b. **What is the benefit of approaching things boldly and confidently?**
      - ✓ *Suggestion: Sometimes taking a risk and being bold can have great rewards. You might miss out on an opportunity if you wait too long.*

Sample Annotated Podcast Quiz

Hot Springs and Geysers Comprehension Quiz

Name: _____

Date: _____

Recall

1. A geyser is a type of hydrothermal activity where
   a. a fountain of water shoots into the air.
   b. water forms into a natural pool.
   c. the earth begins to tremor or shake.

Recall

2. The water in geysers and hot springs becomes hot when
   a. the sun has shone on it for long periods of time.
   b. it comes in contact with magma.
   c. it is exposed to forest fires.

Recall

3. Hot springs occur more slowly and less dramatically because
   a. they are formed through a more complicated process than geysers.
   b. the steam has an open path to travel, so pressure does not build up.
   c. they depend upon an interaction between the minerals in the rocks and the water.

Vocabulary

4. Hydrothermal means
   a. having to do with long underwear.
   b. having to do with hot water.
   c. occurring near water.

Character trait

5. According to the podcast, what word would best describe hot springs?
   a. bouncy b. erupting c. peaceful

Fact / Opinion

6. Which of the following is a fact about geysers and hot springs?
   a. They only form in regions where there has been volcanic activity.
   b. They always result with an explosion of water up through the air.
   c. They are beautiful and exciting natural occurrences.

Sequence events (Fact/opinion for other podcasts)

7. Number the events from the Legend of Blue Feather in the order in which they happen. (1, 2, 3)
   _____ Rain water or melted snow seeps into the ground.
   _____ The steam rises back to the surface either slowly, like a trickle, or in a sudden burst.
   _____ The water becomes heated and turns into steam.

Inference

8. What is the main difference between hot springs and geysers?
   a. One is cold and the other is hot.
   b. One is found in Iceland and the other is found in New Zealand.
   c. The force and speed with which the steam rises to the surface.

Health

9. Toxins help keep our bodies healthy.
   a. true b. false

Health

10. Nuts, avocados, and whole grains contain Vitamin E.
    a. true b. false

Quiz answers are located in the back of the Teacher's Guide.

Quiz Answer Key

1. a 2. b 3. b 4. b 5. c 6. a 7. 1, 3, 2 8. c 9. b 10. a