

# Fishing for a Fortune: The Science of Understanding our World

<b>Author</b>	Mike Laird
<b>Grade Level</b>	6
<b>Duration</b>	3 class periods

## National Standards

### GEOGRAPHY

#### Element 2: Places and Regions

6. How culture and experience influence people's perceptions of places and regions

#### Element 4: Human Systems

10. The characteristics, distribution, and complexity of Earth's cultural mosaics.

#### Element 6: The uses of Geography

17. How to apply geography to interpret the past.

## AZ Standards

### ELA

#### Writing

##### Text Types and Purposes

6.W.1 Write arguments to support claims with clear reasons and relevant evidence.

- Introduce claim(s) and organize the reasons and evidence clearly.
- Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.
- Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.
- Establish and maintain a formal style.
- Provide a concluding statement or section that follows from the argument presented.

### SCIENCE

#### Core Ideas for Using Science

U1: Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.

## Arizona Social Science Standards

### GEOGRAPHY

**Examining human population and movement helps individuals understand past, present, and future conditions on Earth's surface.**

6.G3.1 Analyze how cultural and environmental characteristics affect the distribution and movement of people, goods, and ideas.

## SIOP Elements

<b>Preparation</b> Adapting content <b>Linking to background</b> Linking to past learning Strategies used	<b>Scaffolding</b> <b>Modeling</b> <b>Guided practice</b> Independent practice <b>Comprehensible input</b>	<b>Grouping Option</b> <b>Whole class</b> <b>Small groups</b> Partners <b>Independent</b>
<b>Integrating Processes</b> <b>Writing</b> <b>Speaking</b> <b>Listening</b> <b>Reading</b>	<b>Application</b> <b>Hands on</b> Meaningful Linked to objectives <b>Promotes engagement</b>	<b>Assessment</b> <b>Individual</b> Group <b>Written</b> Oral

## Arizona English Language Proficiency Standards

Grade 6

Basic

Speaking and Writing



Standard 3 By the end of each language proficiency level, an English learner can speak and write about grade appropriate complex literary and informational texts and topics.

B-3 compose informational text that includes details to develop a topic while using appropriate conventions.

B-5: use examples of precise language and domain-specific vocabulary within informative texts.

Standard 4 By the end of each language proficiency level, an English learner can construct grade appropriate oral and written claims and support them with reasoning and evidence.

B-1: construct a claim about a topic or text.

B-2: supply a reason that supports the opinion and is based on some textual evidence.

B-3 use grade appropriate words and phrases.

B-4: provide a concluding statement to an opinion.

### **Listening, Speaking, Reading, and Writing**

Standard 7 By the end of each language proficiency level, an English learner can conduct research and evaluate and communicate findings to answer questions or solve problems.

B-1: gather information from multiple provided resources to answer questions.

B-2: paraphrase observations/information notes with labeled illustrations, diagrams, or other graphics, as appropriate.

B-4: restate the main idea using evidence from text or presentations.

Standard 9 By the end of each language proficiency level, an English learner can create clear and coherent grade-appropriate speech and text.

B-1: introduce and present facts about an informational topic and provide a conclusion when writing and speaking.

B-2: introduce and develop a sequence of events, using an increasing range of temporal and other linking words to connect, compare, and contrast ideas, and information (e.g., before, because, also) when writing and speaking.

## Overview

The ancients did not have today's science and technology available to help them answer life's questions and therefore, turned to divination as a way to find answers. So, from the earliest beginnings of civilization, fortune telling has made it possible for people to explain happenings in our world.

## Purpose

In this lesson, students will share experiences and read about fortune telling. In order to demonstrate the conflict that often exists between divination and science, students will then follow the processes of scientific inquiry as they investigate Fortune Teller Miracle Fish—Why does it move? This lesson includes strategies for diverse learners (ELLs).

## Key Vocabulary

**claim:** a statement of fact

**culture:** the arts, beliefs, customs, and institutions of a group of people

**divination:** to tell the future

**evidence:** facts on which to base a conclusion

**science:** knowledge of the world based on experiments and observation

## Materials

- Teacher Information: How Does the Fortune Teller Miracle Fish Work  
<https://www.thoughtco.com/how-fortune-teller-miracle-fish-works-607867>
- Apollo's Oracle at Delphi reading  
<https://greece.mrdonn.org/greekgods/oracles.html>
- Apollo's Oracle at Delphi Questions and Answer Key
- MythBusters video clip: numerous clips can be found online (optional)
- Fortune Teller Miracle Fish (one for each student)
- Fortune Teller Miracle Fish Lab 1 and 2 sheets
- Fortune Teller Miracle Fish Scoring Guide
- Summary Scoring Guide
- Investigation materials: hand warmers, ice packs, ice, water, hand lotion, small fan, paper plates, paper bowls, paper towels, etc. (Set these out prior to Session One to pique student curiosity.)
- Vocabulary Cards
- Vocabulary Test and Answer Key

## Objectives



## Fishing for a Fortune

Students will be able to:

1. Record ideas reflecting the conflict between fortune telling and science.
2. Design and conduct an investigation on the reliability of Fortune Teller Miracle Fish.
3. Analyze results of an experiment.
4. Write an argument.

### Procedures

*Prior to this lesson: Send home vocabulary cards to diverse learners who may need help with these terms.*

#### SESSION ONE

##### Engage:

- a. Begin the lesson by having the students generate a list of all the fortune telling techniques they are familiar with (fortune cookies, Magic 8 Ball, Cootie Catchers, palm readers, crystal balls, etc.) and record their list on the white board. **(Grouping: Whole class, Preparation: Linking to Background)**
- b. Provide time for students to share, with the whole class, personal experiences they have had with fortune telling. **(Preparation: Linking to Background)**

##### Explore,

- c. Project Apollo's Oracle at Delphi reading. <https://greece.mrdonn.org/greekgods/oracles.html>
- d. Have the class read it aloud and discuss:
  - o What type of fortune telling was this?
  - o What motivates people to have their fortunes told?
  - o In this story, were the fortunes predicted very specific? **(Integrated Processes: Reading, Listening, Speaking)**
- e. On notebook paper, have students answer the following comprehension questions:
  1. Why do you think Apollo was a favorite Ancient Greek god?
  2. How was Apollo's oracle different from other oracles in Ancient Greece?
  3. How credible were Apollo's oracle's predictions?

##### Explain

- f. Project and discuss the vocabulary words: culture, divination, and science.
- g. Look back at the list on the whiteboard. Which of these fortune telling techniques are based on science? **(Scaffolding: Comprehensible input)**

- h. Project and discuss the remaining vocabulary words: evidence and claim. **(Scaffolding: Comprehensible input)**
- i. Tell students that in the next session they will be conducting a scientific experiment in fortune telling. They will then write an argument as to the credibility/reliability of this fortune telling method.

#### SESSION TWO

##### Elaborate:

- a. Introduce the idea of Myth Busters. Show a short clip of one of the programs if students are not familiar with the television program.
- b. Divide students into teams of 3-4. **(Grouping Option: Small groups)** Distribute the A Challenge for the MythBusters: Fortune Teller Miracle Fish Lab 1 sheet to each student. Tell the students that they are becoming MythBusters. **(Application: Promotes engagement)**
- c. Distribute one Fortune Teller Miracle Fish to each student and ask students to leave fish in the cover.
- d. Ask groups examine the cover and explain what the fish is for. Have students determine and explain how the fish will tell a fortune.
- e. Ask students to remove fish from the cover, hold the fish on their palms, carefully observe the actions of the fish, and record the things they see, hear, feel, and smell in the "First Observation" section of their Fortune Teller Miracle Fish Lab 1 sheet. **(Grouping Option: Independent)**
- f. Have students analyze and compare their observations to the fortune telling key on the cover in order to interpret their fortune.
- g. Have students record their fortune in the "My Fortune" section of the Fortune Teller Miracle Fish Lab 1 sheet.
- h. Have students write a short statement explaining why they do or do not believe their fortune. **(Integrating Processes: Writing)**
- i. Provide students an opportunity to share their fortunes with others in the group. **(Integrating Processes: Speaking, Listening)**
- j. Initiate a discussion on the conflict that often exists between science and fortune telling. **(Preparation: Adapting content, Linking to Background)**
- k. Explain to students that they will be designing and conducting a scientific investigation to determine whether the fortune told by the Fortune Teller Miracle Fish is real or should be busted in the next session.
- l. Have the students brainstorm what they think **makes the fish move** and complete the "Claims"



## Fishing for a Fortune

section of their Fortune Teller Miracle Fish Lab 1 sheet. **(Grouping: Small groups)**

### SESSION THREE

*Prior to this session, gather materials that might be needed to conduct the experiments (fans, thermometers, ice, hair dryers, ???)*

m. Have groups record the one claim to investigate (from Lab 1 sheet) in the "Question" section of the Fortune Teller Miracle Fish Lab 2 sheet.

n. Have several groups share their questions with the class and help groups craft a question that can be tested with materials in the classroom.

**(Scaffolding: Modeling, Guided practice)**

o. Then instruct groups to develop and record the procedures they will follow to test their question. Review and approve their procedures at this point. Students will record their team's procedures in the "Procedure" section of the Fortune Teller Miracle Fish Lab 2 sheet. **(Scaffolding: Modeling, Guided practice)**

p. Provide groups with collect required materials to test their claim. **(Application: Hands-on)**

q. Remind students to make and record observations in the "Observation" section of the Lab 2 sheet.

### Evaluation:

r. Explain the Summary Scoring Guide.

s. Demonstrate how to find concrete evidence (an important fact) in their Lab 2 sheets and then to find details to support their statements. **(Scaffolding: Modeling, Guided practice)**

t. Emphasize that a well-written summary will have at least three statements of concrete evidence and each will have at least one detail.

u. Summaries will also have introductory statements and a conclusion as well as correct conventions.

v. Instruct students to write their summary in the "Conclusion" section of the Lab 2 sheet.

**(Assessment: Individual, Written; Integrating Processes: Writing)**

## Assessment

### Geography

Comprehension questions from the reading about Apollo's oracle can be graded. Mastery will be considered good answers to the three questions.

### Science

Fortune Teller Miracle Fish Lab 1 and 2 sheets can be graded with the Fortune Teller Miracle Fish Scoring Guide. Mastery will be considered 40 points or higher. Diverse students such as ELLs may score 30 points or higher to be considered mastery.

### ELA

Summaries will be graded with the Summary Scoring Guide. A score of 40 pts or higher will be considered mastery. Diverse students such as ELLs may have 2 statements of concrete evidence with details to be considered mastery.

Vocabulary acquisition can be measured with the Vocabulary Test. Mastery will be considered a score of 80% or higher.

## Extensions

- Show YouTube video (3.58 min) The Fortune Fish which explains and shows the solution to what makes the fish move <https://www.youtube.com/watch?v=bl0a8DEy6dY>
- Can research other parts of the world for their fortune telling practices.
- Can interview people in their family and see what beliefs they hold about fortune telling.

## Sources

Apollo's Oracle at Delphi

<http://greece.mrdonn.org/greekgods/oracles.html>

How Does the Fortune Teller Miracle Fish Work

<https://www.thoughtco.com/how-fortune-teller-miracle-fish-works-607867>

MythBusters home page

<http://dsc.discovery.com/tv-shows/mythbusters>

Fortune Teller Miracle Fish from Amazon.com  
144 fish for approximately \$8.00

