IGNITEMYFUTURE

LESSON TITLE

True or False?

Guiding Question: How does perspective shape our understanding?

Ignite Curiosity

- How is a legend different from a news story?
- Are all stories entirely fact or fiction?
- Why is it important to know the difference between truth and legends?
- How much data would a computer need to accept a fact as true?

SUBJECTS

English/Language Arts

COMPUTATIONAL THINKING PRACTICE

Collaborating Around Computing

COMPUTATIONAL THINKING STRATEGIES

Collect Data
Analyze Data

MATERIALS

Fact or Fiction? student handout

Legend Research student handout

News Story student handout

Computers with access to the Internet

In this lesson, students will apply the computational thinking strategies of collecting and analyzing data to a number of legends in order to separate fact from fiction. In **THINK**, students act as investigative journalists working on a story about myths and urban legends. They are challenged to examine the logic they use to determine the veracity of these stories. In **SOLVE** students choose several myths from a list and collect data about the stories. They create a list of initial questions to answer about their chosen myths, then note how new questions arise in the search process. Then, they make notes of what they discover, marking each story as true, false, or unconfirmed and noting their sources. In **CREATE** write a news article about the stories they have researched, analyzing the data they have collected and drawing logical conclusions based on this data. Students may turn in a written report or present it to the class (presentation can be live or recorded). In **CONNECT**, students identify how investigating the truth behind myths and legends has led to discoveries in science and other fields and why it is important to distinguish reputable sources for facts from unverified sources.

Students will be able to:

- **Understand** how computational thinking can help us determine the veracity of facts,
- **Evaluate** relevant information about a topic, and
- **Analyze** the credibility of sources used to support a thesis.

Students act as investigative journalists working on a story about myths and urban legends.

1 **Read** the following scenario to students:

Bigfoot, the Loch Ness Monster, the New Jersey Devil—these fascinating legends have one thing in common: they haven't been proved! Imagine you are an investigative journalist. You have been assigned a story about the truth behind several popular legends. Your editor warns you that the story must be accurate or you could lose your job. How will you go about separating fact from fiction?

Ask students to describe the difference between a true story and a false one. Then, ask them how they can tell the difference—how can they prove that something is true or false? Point out that facts must be supported by **data** that is both verifiable and repeatable—if they are not, they cannot be considered true *or* false. Additionally, point out that just because a story seems unbelievable does not necessarily make it false. Provide examples, such as scientists discovering strange new animal species, and explain what data confirms the stories to be true.

2 **Lead** students to consider the importance of verifiable research by considering the following questions:
- Why are open-source resources like Wikipedia unreliable?
- Why is it important to confirm data using more than one source?
- What reasons would someone have for printing false data?
- How does information technology affect our ability to find and verify data?
- Why do people continue to believe stories that have been disproven?

3 **Distribute** the Fact or Fiction student capture sheet. Ask students to review the items on the list and write down their initial response to each. Do they think each is true or false?

4 **Then, ask students** to think about why they responded to each story the way they did. Point out that everyone brings his or her own preconceptions to information. Ask students to consider their preconceptions and how they can avoid letting these preconceptions color their research.

5 **Challenge** students to identify and summarize the problem that needs to be solved. Remind them that whether a piece of data is true or false is not always obvious, and reiterate the steps they should take to confirm the veracity of the data they are investigating.

Students choose several myths from a list, then collect data about the stories.

1 **Now that students have explored** the methodology of researching myths and legends, they will put their understanding into practice. Remind them of the scenario from the beginning of the class, and inform them that they will now be stepping into the role of investigative reporter.

2 **Distribute** the Legend Research student capture sheet. Ask students to choose three stories from the Fact or Fiction student capture sheet and write them on the worksheet. They will note their initial response to the story: Did they believe it was true or false? Then, have students write a list of questions they will ask while investigating each story.

3 **Have students begin their research** using the Internet. Remind students to take notes and to copy the URLs they use for researching each legend into that legend's section of the Legend Research student capture sheet.

4 **While students are researching**, remind them to answer the initial questions they wrote for each story and write down any new questions that arise during their research. Ask them to note if their initial response to the story has changed due to their research, and if so, how it has changed.

Students create a list or chart based on their research notes. Then, they write a news article about the stories they have researched.

1 **Once students have completed** their research, direct them to use the News Story student capture sheet to outline the data they have gathered for each of the three stories. The worksheet should include the following information for each of the stories:

- Answers to all questions on the worksheet
- Any additional verifiable data discovered during the research
- A comparison of the student's initial response to the story (true or false?) to the conclusion reached after doing the research
- All sources used in the research

2 **Have students use their list** or chart to write a news story about the legends they have researched, analyzing the data they have collected and drawing logical conclusions based on this data. Remind students to cite all of the sources they used to support their conclusions. Offer assistance if students are unfamiliar with the proper way to cite sources. Students may turn in their written story or present it to the class either live or recorded.

Teacher Note: Purdue OWL is an excellent resource for proper citation format. It includes information for both MLA and APA formatting.

3 **Summarize** by asking students whether their news stories came to the same conclusion as their initial thoughts on each of the three legends and how their research either supported or changed their initial conclusions. Point out the importance of reliable data and data sources in forming opinions about information, whether it's myths and urban legends (as in this exercise), rumors about friends and family, or news stories. Remind them that being able to draw logical conclusions based on verifiable data will help them make accurate decisions in all areas of life.

Select one of the strategies listed below to help students answer these questions:

- **How do this problem and solution connect to me?**
- **How do this problem and solution connect to real-world careers?**
- **How do this problem and solution connect to our world?**

1 **Write** the three questions on PPT or flip chart slides and invite students to share out responses. Display chart paper around the room, each with one question written on it. Ask students to write down their ideas on each sheet.

2 **Assign** one of the questions to three different student groups to brainstorm or research, and then share out responses.

3 **Direct** students to write down responses to each question on a sticky note, and collect them to create an affinity diagram of ideas.

How does this connect to students?	How does this connect to careers?	How does this connect to our world?
Most students have heard an unfounded rumor. Understanding how to analyze data and determine its validity can help prevent the spread of such rumors.	**Scientists and Doctors** in many fields have made important discoveries by questioning assumptions and investigating the truth behind myths and legends. For example, many medicines are based on the same plants as those used in folk remedies. **Journalists, Teachers, and Nonfiction Writers** need to collect data from many sources, verify their sources, and use logic to evaluate them when writing stories or articles. This is critical for keeping their jobs and maintaining their reputations. It is important for students and professionals to be able to distinguish reputable sources from unverified sources. **Computer Programmers** need this level of logic when writing code, or their games and programs will not perform properly.	The ability to distinguish between fact and fiction and between verifiable and unverifiable data enables students to make informed decisions about everything from what college to attend and what career to choose to electing politicians who represent their interests. This ability will also allow students to make informed decisions about data they encounter through news media and draw their own conclusions about the events being described, rather than accepting or rejecting the data on sight. Finally, it is important for students to understand that if they make claims, particularly in text, other people can verify those claims. If an unverified claim is disproven, it can affect the career or personal life of the person making that claim.

Find more easy-to-implement resources to integrate computational thinking practices into your classroom by visiting **ignitemyfutureinschool.org**

National Standards

WHST.6-8.7
Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

WHST.6-8.8
Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

WHST.6-8.9
Draw evidence from informational texts to support analysis, reflection, and research.

K-12 COMPUTER SCIENCE FRAMEWORK

Practice 2. Collaborating Around Computing
Collaborative computing is the process of performing a computational task by working in pairs and on teams. Because it involves asking for the contributions and feedback of others, effective collaboration can lead to better outcomes than working independently. Collaboration requires individuals to navigate and incorporate diverse perspectives, conflicting ideas, disparate skills, and distinct personalities. Students should use collaborative tools to effectively work together and to create complex artifacts.

Fact or Fiction?

Legend	True	False
Loch Ness Monster		
Chupacabra		
Colossal Squid		
Bigfoot		
Crop Circles		
Life on Mars		
Spontaneous Human Combustion		
Alien Abduction		
Bloody Mary		
Killer Robots/AIs		
Flat/Hollow Earth		
Staged Moon Landing		

Legend Research Worksheet

Legend	Initial Conclusion (True/False)	Final Conclusion (True/False/ Unverifiable)
Legend: Questions: Notes: Sources:		
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Legend: Questions: Notes: Sources:		

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News Story Worksheet

Use this worksheet to organize and develop your notes into an outline (list or chart) of your final news story.