



# IGNITE MY FUTURE

## LESSON TITLE

## True or False?

*Guiding Question: How does perspective shape our understanding?*

### SUBJECTS

English/Language Arts

### COMPUTATIONAL THINKING PRACTICE

Asking Questions and Defining Problems, Planning and Carrying Out Investigations

### 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

## 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?

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, Sasquatch—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 creatures](#), 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, and 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 legends 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:** [Your Quote it You Note it](#) and [Purdue OWL](#) are two excellent resources for proper citation format. They include 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.

### Extension:

Ask students what myths they have in their own communities. Could they investigate them to determine if they were true or false using computational thinking like we did?



## 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?

Most students have heard an unfounded rumor. Understanding how to analyze data and determine its validity can help prevent the spread of such rumors.

### How does this connect to careers?

**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.

### How does this connect to our world?

The ability to distinguish between fact and fiction and between verifiable and unverifiable data enables students to make informed decisions about everything from what post-secondary institution 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.

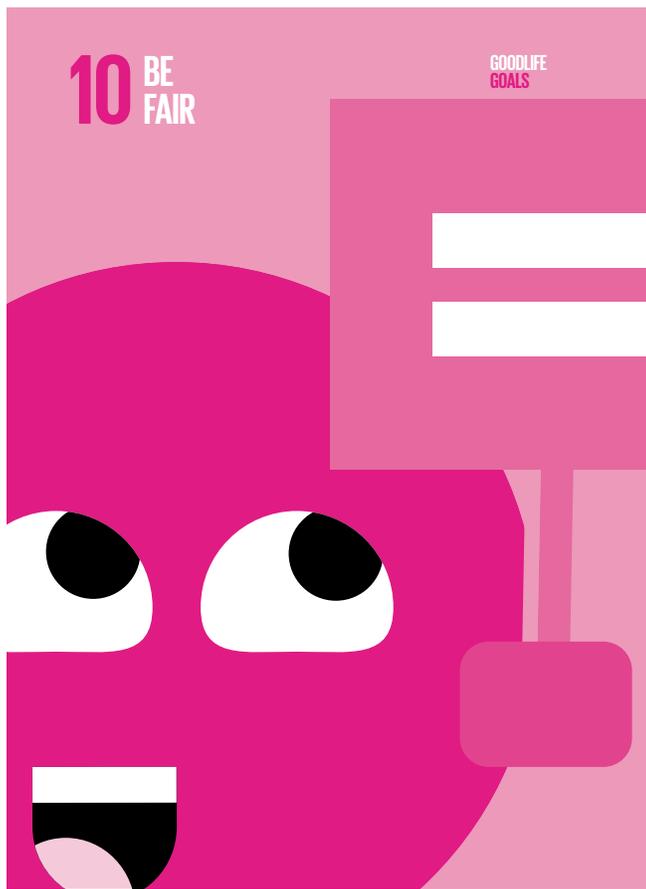
## Curriculum Connections

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS



“For the goals to be reached, everyone needs to do their part: governments, the private sector, civil society and **people like you.**”  
–The United Nations

“The Sustainable Development Goals are the blueprint for a better future. And together we can reach them. By following the Good Life Goals, we can all help make tomorrow better than today. Let’s do this! #GoodLifeGoals”



**BE FAIR**  
Actions

10

1 **Stay open-minded, listen and learn from others**

4 **Buy from companies that pay tax and treat people fairly**

2 **Support leaders who reduce inequality**

5 **Stand up for your rights, and the rights of others**

3 **Protect and welcome the vulnerable**



Reduce inequality within and among countries.

SUSTAINABLE DEVELOPMENT GOALS

Source: [The Good Life Goals by Futerra Sustainability Communications Ltd and 10-Year Framework of Programmes on Sustainable Lifestyles and Education Programme](#) is licenced under CC BY-ND 4.0.

Find more easy-to-implement resources to integrate computational thinking practices into your classroom by visiting [ignitemyfutureinschool.ca](https://www.ignitemyfutureinschool.ca)

## Global Competencies

CMEC (Council of Ministers of Education, Canada) Pan-Canadian Global Competencies Descriptions

Highlighted sections apply to this lesson

Global Competency	Definition	Student Descriptors
Collaboration	Collaboration involves the interplay of the cognitive (including thinking and reasoning), interpersonal, and intrapersonal competencies necessary to participate effectively and ethically in teams. Ever-increasing versatility and depth of skill are applied across diverse situations, roles, groups, and perspectives in order to co-construct knowledge, meaning, and content, and learn from, and with, others in physical and virtual environments.	<p>Students participate in teams by establishing positive and respectful relationships, developing trust and acting co-operatively and with integrity.</p> <p>Students learn from and contribute to the learning of others by co-constructing knowledge, meaning, and content.</p> <p>Students assume various roles on the team, respect a diversity of perspectives, and address disagreements and manage conflict in a sensitive and constructive manner.</p> <p>Students network with a variety of communities/groups and use an array of technology appropriately to work with others.</p>
Communication	Communication involves receiving and expressing meaning (e.g., reading and writing, viewing and creating, listening and speaking) in different contexts and with different audiences and purposes. Effective communication increasingly involves understanding both local and global perspectives, societal and cultural contexts, and adapting and changing using a variety of media appropriately, responsibly, safely, and with regard to one's digital footprint.	<p>Students communicate effectively in different contexts in oral and written form in French and/or English through a variety of media.</p> <p>Students communicate using the appropriate digital tools and create a positive digital footprint.</p> <p>Students ask effective questions to acquire knowledge, listen to understand all points of view, voice their own opinions, and advocate for ideas.</p> <p>Students gain knowledge about a variety of languages and understand the cultural importance of language.</p>

## Global Competencies cont.

Highlighted sections apply to this lesson

Global Competency	Definition	Student Descriptors
<p>Global Citizenship and Sustainability</p>	<p>Global citizenship and sustainability involve reflecting on diverse worldviews and perspectives and understanding and addressing ecological, social, and economic issues that are crucial to living in a contemporary, connected, interdependent, and sustainable world. It also includes the acquisition of knowledge, motivation, dispositions, and skills required for an ethos of engaged citizenship, with an appreciation for the diversity of people, perspectives, and the ability to envision and work toward a better and more sustainable future for all.</p>	<p>Students understand the ecological, economic, and social forces, their interconnectedness, and how they affect individuals, societies, and countries.</p> <p>Students take actions and responsible decisions that support quality of life for all, now and in the future.</p> <p>Students recognize discrimination and promote principles of equity, human rights, and democratic participation.</p> <p>Students understand Indigenous traditions and knowledge and its place in Canada, learn from and with diverse people, develop cross-cultural understanding, and understand the forces that affect individuals, societies, and nations.</p> <p>Students engage in local, national, and global initiatives to make a positive difference.</p> <p>Students contribute to society and to the culture of local, national, global, and virtual communities in a responsible, inclusive, accountable, sustainable, and ethical manner.</p> <p>Students as citizens participate in networks in a safe and socially responsible manner.</p>

## Global Competencies cont.

Highlighted sections apply to this lesson

Global Competency	Definition	Student Descriptors
Critical Thinking and Problem Solving	Critical thinking and problem solving involve addressing complex issues and problems by acquiring, processing, analysing, and interpreting information to make informed judgments and decisions. The capacity to engage in cognitive processes to understand and resolve problems includes the willingness to achieve one's potential as a constructive and reflective citizen. Learning is deepened when situated in meaningful, real-world, authentic experiences.	<p>Students will solve meaningful, real-life, complex problems by taking concrete steps to address issues and design and manage projects.</p> <p>Students will engage in an inquiry process to solve problems as well as acquire, process, interpret, synthesize, and critically analyse information to make informed decisions (i.e., critical and digital literacy).</p> <p>Students will see patterns, make connections, and transfer what they have learned from one situation to another, including in real world applications.</p> <p>Students will construct, relate, and apply knowledge to all domains of life such as school, home, work, friends, and community.</p> <p>Students will analyze the functions and interconnections of social, economic, and ecological systems.</p>
Innovation, Creativity and Entrepreneurship	Innovation, creativity, and entrepreneurship involve the ability to turn ideas into action to meet the needs of a community. The capacity to enhance concepts, ideas, or products to contribute new-to- the-world solutions to complex economic, social, and environmental problems involves leadership, taking risks, independent/unconventional thinking and experimenting with new strategies, techniques, or perspectives, through inquiry research. Entrepreneurial mindsets and skills involve a focus on building and scaling an idea sustainably.	<p>Students formulate and express insightful questions and opinions to generate novel ideas.</p> <p>Students contribute solutions to complex economic, social, and environmental problems or to meet a need in a community in a number of ways including; enhancing concepts, ideas, or products through a creative process, taking risks in their thinking and creating, making discoveries through inquiry research, and by hypothesizing and experimenting with new strategies or techniques.</p> <p>Students demonstrate leadership, initiative, imagination, creativity, spontaneity, and ingenuity in a range of creative processes and motivate others with an ethical entrepreneurial spirit.</p>



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## Global Competencies cont.

Highlighted sections apply to this lesson

Global Competency	Definition	Student Descriptors
<p>Learning to learn and to be self-directed and self-aware</p>	<p>Learning to learn and to be self-directed and self-aware, means: becoming aware and demonstrating agency in one's process of learning, including the development of dispositions that support motivation, perseverance, resilience, and self-regulation. Belief in one's ability to learn (growth mindset), combined with strategies for planning, monitoring and reflecting on one's past, present, and future goals, potential actions and strategies, and results. Self-reflection and thinking about thinking (metacognition) promote lifelong learning, adaptive capacity, well-being, and transfer of learning in an ever-changing world.</p>	<p>Students learn the process of learning (metacognition) (e.g., independence, goal-setting, motivation) and believe in their ability to learn and grow (growth mindset).</p> <p>Students self-regulate in order to become lifelong learners and reflect on their thinking, experience, values, and critical feedback to enhance their learning. They also monitor the progress of their own learning.</p> <p>Students develop their identity in the Canadian context (e.g., origin and diversity) and consider their connection to the environment. They cultivate emotional intelligence to understand themselves and others. They take the past into account to understand the present and approach the future.</p> <p>Students develop personal, educational, and career goals and persevere to overcome challenges to reach these goals. They adapt to change and show resilience to adversity.</p> <p>Students manage various aspects of their lives: physical, emotional (relationships, self-awareness), spiritual, and mental well-being.</p>

## 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		
Sasquatch		
Werewolves		
Vampires		

## Legend Research Worksheet

Legend	Initial Conclusion (True/False)	Final Conclusion (True/False/Unverifiable)
<p><b>Legend:</b></p> <p>Questions:</p> <p>Notes:</p> <p>Sources:</p>		
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<p><b>Legend:</b></p> <p>Questions:</p> <p>Notes:</p> <p>Sources:</p>		

## News Story Worksheet

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