



LESSON PLAN

Level:	Grades 7-9
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Duration:	60-75 minutes

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Mixed Signals: Verifying Online Information



This lesson is part of *USE, UNDERSTAND & CREATE: A Digital Literacy Framework for Canadian Schools*: <http://mediasmarts.ca/teacher-resources/digital-literacy-framework>.

Overview

In this lesson, students examine two websites about unlikely animals and learn how to effectively evaluate online sources. They then create a fake website that demonstrates the misleading signals that are often mistakenly taken as signs of reliability.

Learning Outcomes

Students will:

- Learn to distinguish between strong and weak signals of reliability online
- Practice finding strong signals
- Demonstrate an understanding of weak signals
- Evaluate the reliability of an online source
- Create a media text (website)

Preparation and Materials

Make sure that students can access the websites *House Hippo Foundation* (www.househippofoundation.org) and *National Birmingham Roller Club* (<https://nbrc.us/home-page/history/what-is-a-birmingham-roller/>)

Make sure that students can access the video *Digital Literacy 101: Digital Media are Networked* (https://www.youtube.com/watch?v=b-HXiObDDnA&feature=emb_logo)

Make available the student worksheet *Record Your Thinking: Verifying a Website*

Make available the student handout *Verifying a Website: Strong and Weak Signals*

Make available the assignment sheets *Make it or Fake It* and, if you choose to have them do a written evaluation, *Verifying a Website*



If you choose to have students do a written evaluation, read the teacher backgrounder *Verifying a Website: Rubric and Model Responses*

Procedure

Start by having students watch the video *Digital Literacy 101: Digital Media are Networked*. (You can do this in class or assign it as homework.)

Ask students: What makes it difficult to know whether something you see online is true or not? (It's easy to post and spread fake content online.) Ask them what they do, if anything, to verify what they see online. Let students share their answers but don't comment on them.

Facts and Sources

Explain to students that it's usually more important to verify a *source* (where you got a fact) than the fact itself. Unreliable sources sometimes will have some accurate facts: what they usually do is present a mix of true and false facts or cherry-pick facts that support their side and leave out others that don't.

Verifying a source basically means asking two questions:

First, do they have a record of giving good information and correcting their mistakes?

Point out that all sources have a *bias* of one kind or another (science sites only cover science stories, newspapers only report things that are seen as newsworthy) but a trustworthy site should not have an *agenda* – something that is more important to them than giving you accurate information, like selling you something or making you believe one side of an issue.

Second, if it's not a general-purpose source like a newspaper, are they a genuine *expert* on that topic?

Remind students that being an expert in one area doesn't make you an expert in everything: you wouldn't ask a psychiatrist to fix your teeth.

Not having an *agenda* is not the same thing as being *neutral*: an expert will probably have stronger opinions on their topic than someone who doesn't know much about it. But an expert bases their opinion on what they know. Someone with an agenda bases their opinion on what they *believe*, or what they want you to believe.

House Hippos and Roller Pigeons

Divide students into pairs. Have one member of each pair evaluate one of the two websites, *House Hippo Foundation* and *Central Roller Club*.

Instruct each student to look at their website and take any steps that they can think of to find out if it is trustworthy or not. (At this stage each student should *only* look at the website they have been assigned, not their partner's.) Have students use the handout *Record Your Thinking: Verifying a Website* to record their thinking.

Once students have finished reviewing the website (you may wish to set a time limit) have them share their findings with their partners. What did they decide about the site's reliability, and why?

Have students look briefly at the site their partners evaluated. Do they agree with their partner's evaluation? Why or why not?



Each pair of students should now discuss which site would be more useful to them as a source for a project on unusual animals.

Strong and Weak Signals

Now distribute the student handout *Verifying a Website: Strong and Weak Signals* and explain that on the internet, it's easy to fake the things that make a website or similar source *look* real, like a clean layout, contact information, or a name that includes words like “foundation” or “institute.” Even the web address doesn't tell you very much because anyone can buy a .org address and most universities let professors set up personal sites on their .edu addresses. That's why these are *weak signals*.

At the same time, some things that we might think make a website less reliable, like spelling or grammar mistakes or ads, are misleading. A lot of legitimate sources like newspapers have ads on the page, and enthusiastic amateurs can make mistakes when making a website that's perfectly reliable.

The other problem is that there are a *lot* of possible weak signals. This means that using them to verify a website or other source can take a lot of time. It also means that you're more likely to think a source that's reliable *isn't* because you can always find some weak signals that something isn't trustworthy.

What works better is to focus on a small number of *strong signals*. Ignore what the source says about itself – that can be easily faked – and find out what *other sources* say about it:

- *What does a Google search show?* Search for the source and see what comes up. Does anyone else mention it at all? Do other sources – especially ones you know are trustworthy – treat it like it's a trusted expert source? Does a News search give you any better information?
- *What does Wikipedia say?* Like Google, Wikipedia isn't a perfect source, but it's mostly reliable about basic facts. It will usually tell you the overall *consensus* on a topic – whether a source is generally seen as reliable, whether an organization has an agenda that means you have to read it with skepticism, and whether something really exists or not.
- *What do fact-checkers say?* Fact-checkers like Snopes or Hoaxeye specialize in debunking fakes and hoaxes. You can search them to see if something has already been debunked.
- *What do sources that you know are reliable say?* It's always good to check against sources that you already know are reliable.

Now ask students to re-evaluate both websites using only the things listed under the “Strong Signals” column. Tell them to stop as soon as they think they have an answer.

If you wish, you can have students do a written reflection based on their re-evaluation before taking it up in class. Distribute the assignment sheet *Verifying a Website* and ask them to write a paragraph explaining their evaluation of the websites' reliability.

Once students have re-evaluated the websites (and, if you chose the optional reflection task, their paragraphs) ask them what they found.



Point out that there are a lot of weak signals that make the house hippo page look reliable (clean design, real photos, .org address, lots of information) and make the roller pigeon page look unreliable (ads, .us address, it's selling something). But looking at any of the strong signals will quickly show both roller pigeons and the National Birmingham Roller Club are for real and that house hippos, and the House Hippo Foundation, are fake.

Assessment Task: Make it or Fake It

Tell students that they're going to explore how easy it is to fake weak signals by making their own website. Distribute the assignment sheet *Make It or Fake It* and have students work singly, in pairs or in groups to create a website that has as many weak signals of reliability as possible.

Review the list of weak signals on the *Verifying a Website: Weak and Strong Signals* handout and highlight that people are often fooled by websites that look professional. Ask students what things mark a website as looking professional. Once they have shared their thoughts, go through the list on the *Make It or Fake It* assignment sheet and add any things that students mentioned that are not listed there.

Depending on the time and technology available, you may either have them create a paper version of the website or make their website online. This can be done by cutting-and-pasting printed text and graphics onto poster paper or done entirely by hand, at your discretion.

If your students already have Google accounts, the easiest option will Google Sites (<https://sites.google.com/new>). You can get an overview of how it works here: <https://support.google.com/sites/answer/6372878?hl=en>

If your students do not have Google accounts, you may create an account specifically for this project and have students create different pages using that account. *If you choose this option students will be able to access each others' pages, so make sure they know to only access their own.*

If you would prefer not to use Google Sites, you can explore the following free website creation tools:

- <https://snappages.com/>
- <https://www.sitey.com/>
- <https://www.weebly.com/ca>
- <https://www.wix.com/>

The assignment sheet has some suggestions for sources of copyright-free images for students to use in their websites. You may also want to read the MediaSmarts article *Fair Dealing for Media Education* (<https://mediasmarts.ca/digital-media-literacy/media-issues/intellectual-property/fair-dealing-media-education>) to help give your students guidance on using other images legally and ethically.



Verifying a Website: Rubric and Model Responses

Use this backgrounder to see the qualities of a successful paragraph and exemplars of each level.

Grade	Example
<p>An <i>excellent</i> response will:</p> <p>Correctly evaluate the reliability of the website</p> <p>Provide at least one example of strong signals and clearly explain how they support the evaluation</p> <p>Not include any weak signals</p>	<p>“The House Hippo website is unreliable. The Wikipedia entry for ‘House Hippo’ shows that they are a parody, which means the website must be a parody too. A Google search for ‘house hippo foundation’ or the web address don’t find anything except the website. A News search for ‘house hippo’ finds lots of articles about a house hippo PSA that was made to teach people not to believe everything they see online.”</p>
<p>A <i>confident</i> response will:</p> <p>Correctly evaluate the reliability of the website</p> <p>Provide at least one example of strong signals and explain how they support the evaluation</p>	<p>“The Roller Club website is reliable. A Google search finds lots of references to it from other sources, including the Better Business Bureau, which is a reliable source. Looking up ‘Birmingham Roller’ on Wikipedia shows that they are real which shows there’s no reason to think it’s fake.</p>
<p>A <i>competent</i> response will:</p> <p>Correctly evaluate the reliability of the website</p> <p>Provide at least one example of strong signals</p>	<p>“The Roller Club website is reliable. A Google search finds lots of references to it from other sources, including the Better Business Bureau, which is a reliable source. Looking up ‘Birmingham Roller’ on Wikipedia shows that they are real which shows there’s no reason to think the Roller Club website is fake. The website has lots of information about the topic.”</p>
<p>A <i>beginning</i> response will:</p> <p>Provide at least one example of strong signals</p>	<p>Example: “The Birmingham Roller site is unreliable. It doesn’t have an About Us page and there are ads trying to get you to buy things. It doesn’t have a Wikipedia entry.”</p>
<p>An <i>insufficient</i> response will:</p> <p>Not provide any examples or strong signals, even if the evaluation of the website is correct</p>	<p>“The House Hippo site is reliable. It has a .org address and it is a non-profit. The About Me page says who is behind the site.”</p> <p>“The House Hippo site is unreliable. The photos look fake and there is no such thing as a house hippo.”</p>



Record Your Thinking: Verifying a Website

Use this worksheet to record your thinking as you verify **one** of the following websites:

- National Birmingham Roller Club <https://nbrc.us/home-page/history/what-is-a-birmingham-roller/>
- House Hippo Foundation www.househippofoundation.org

Decide with your partner which of you is verifying each website before you start.

Do anything you can think of to find out if the site is a reliable source or not.

In the first column, record every clue you find that helps you tell whether or not the site is reliable.

In the second column, record whether that clue makes you think it is more or less likely to be reliable.

In the third column, record *why* the clue makes you think the site is more or less likely to be reliable.

Clue	More or less reliable?	Why do you think so?

Overall, do you think this website is trustworthy or not? Yes No

Verifying a Website: Strong and Weak Signals

Verifying a source of information (a website, a person, an article, etc.) means asking two questions:

Is the source *trustworthy*?

Is the source an *expert on the topic*?

A *trustworthy* source is one that has a good record of giving good information and correcting its mistakes.

All sources have a *bias* of one kind or another (science sites only cover science stories, newspapers only report things that are seen as newsworthy) but a trustworthy site should not have an *agenda* – something that is more important to them than giving you accurate information, like selling you something or making you believe one side of an issue.

An *expert* source is one that knows a lot about a particular topic.

Remember that being an expert in one area doesn't make you an expert in everything. You wouldn't ask a psychiatrist to fix your teeth.

People and groups don't have to be totally neutral to be reliable!

An expert will probably have stronger opinions on their topic than someone who doesn't know much about it. But an expert bases their opinion on what they know. Someone with an agenda bases their opinion on what they *believe*, or what they want you to believe.

So how do we find out if something is a trusted expert source?

You don't have to read a whole website or article to find out. In fact, you're better off not reading it *until* you've found out.

Instead, start by making sure that you're looking at the *original* source: is there anything that suggests the information originally came from somewhere else? If so, find the original source and then check that.

Once you're sure you're at the original source, look for the *strong signals* that something is a trusted expert source. If there are no strong signals that show a source is trustworthy, that doesn't mean that what's in it is wrong or fake: it just means that you need to find a better source.

Strong Signals

✓ *What does a Google search show?* Search for the source and see what comes up.

Does anyone else mention it at all?

Do other sources – especially ones you know are trustworthy – treat it like it's a trusted expert source?

Put phrases in quotes to get more relevant results:

“roller pigeon” *instead of* roller pigeon

If you're looking up a website with a common name, you may need to search for the web address. (Make sure to put it in quotes.)

“Lifespan.org” *instead of* Lifespan

If most of the results are the website itself, add a minus sign and then the web address, with no space between to skip those:

“house hippo foundation” -househippofoundation.org

If there’s an author listed, or an expert quoted in the article, you can search for their name too. If it’s a common name you can add the name of the website or organization or the topic they’re supposed to be an expert on.

✓ *What does a News search show?* Remember that Google indexes almost every site on the Web. Switching to the News tab narrows your search to verified news sources. (They make mistakes sometimes, but overall the News search is a lot more reliable.)

You can also use bit.ly/news-search, a custom search engine that searches ten Canadian and international news sources at once.

✓ *What does Wikipedia say?* Like Google, Wikipedia isn’t a perfect source, but it’s mostly reliable about basic facts. It will usually tell you whether something really exists or not, whether a source is generally seen as reliable, and whether an organization has an *agenda* that means you have to read it with skepticism.

You can search Wikipedia from Google by adding “Wikipedia” to your search.

You may want to search for the topic instead of the source. This helps you find out the *consensus* on the topic (what most people who are experts on the topic generally agree is true.) If what you really want to know is whether Roller Pigeons are real or not, it might make more sense to search for “roller pigeons” than for “Central Roller Club.”

A person or source might not have their own Wikipedia entry but might be mentioned in others. If searching Wikipedia doesn’t work, try doing a Google search for the source plus the word “Wikipedia”.

Sometimes people make misleading changes to Wikipedia articles. Those almost always get changed back within a few minutes by Wikipedia’s editor bots, but you can double-check by clicking on the Talk tab (which shows you if editors are arguing about changes) or the View History tab (which shows you what changes have been made to the article.)

You can quickly search a Wikipedia article, and most web pages, by pressing CTRL-F (on a PC) or Command-F (on a Mac.) In mobile browsers tap three dots at the top or bottom of the window and tap Find in Page.

✓ *What do sources that you know are reliable say?* It’s always good to check against trusted, expert sources.

You can ask your teacher for help finding trusted expert sources on different topics.

You can also search bit.ly/science-search, which searches ten trusted science sources as once.

✓ *What do fact-checkers say?* Fact-checkers like Snopes or Hoaxeye specialize in debunking fakes and hoaxes. You can search them to see if something has already been debunked.

Remember that anyone can call themselves a fact-checker. Make sure they’ve agreed to the International Fact Checking Network’s Code of Principles and been verified by the IFCN: <https://ifcncodeofprinciples.poynter.org/signatories>

You can also search bit.ly/fact-search, a custom search engine that searches multiple fact-checkers at once.

Weak Signals

Besides looking for strong signals, you may need to remind yourself not to pay attention to *weak signals*. These are things we might *think* tell us something about whether a source is reliable or not, but are actually meaningless or misleading. They can also take a lot more time to check than strong signals!

It's important to know *not* to pay attention to these because people and groups that try to spread bad information can use them to fool you.

X *Name or title*. Anyone can call themselves an “institute” or a “university” online. Use Google or Wikipedia to see if they're for real.

X *“About Us” page or contact info*. The “About Us” page is what the source is telling you about itself. Why should you believe that? Use Google or Wikipedia to see what *other* people say.

X *How much information there is, or how useful it is to you*. It's great when you find a site that looks like it has all of the information you need, but that doesn't mean it's reliable!

X *How it looks*. It's not hard to make a professional-looking website, and sometimes reliable sources (like government agencies or universities) don't update the look of their website for a long time.

X *Links to other sources*. Links are good when they lead you to a trusted expert source. But just having links to other sources doesn't mean *this* source is reliable.

X *No ads*. Lots of trusted sources, like newspapers, have ads. That doesn't mean they're fake!

X *Giving both sides of a story*. It's definitely bad when sources *cherry-pick* by only giving you information that supports one side of an issue. But a lot of sites that spread bad information on purpose do it saying they're “just asking questions” or “showing both sides” on a topic where there aren't really two sides, like whether vaccines are safe or whether the Holocaust happened.

When there's a solid *consensus* on something, including information that is outside the consensus can actually spread misinformation. Just because some people believe the pyramids were built by aliens doesn't mean an article on them has to mention that!

To find out what the *consensus* is on a topic, try Wikipedia. To save time, search the article for a key word: for example, you can search for “aliens” in the Pyramids article to see if any experts believe that aliens built them (they don't) or search for “autism” in the Vaccines article to see if any experts believe vaccines cause autism (they don't).

To get the consensus on a news story, do a Google search and check the News tab. If no news sources are covering it, or just a small number, wait until it's been confirmed by others.



Mixed Signals

Some signals do give you clues about whether a source is reliable or not, but in a more limited way than you may think.

Web address. Most of the time, the web address is a weak signal: anyone can buy a .org web address, and a lot of universities let professors have personal pages on their .edu addresses.

A very small number of web addresses are reserved for governments, like .gov (for the US government) and .gc.ca (for the Canadian federal government.) Aside from that, the *only* thing a web address can tell you is whether you're on the real page or a fake. Google the site to make sure it's the right web address.

Date. Knowing when something was published is useful if you want to know if a photo being spread around was really taken recently, or if a news story happened now or last year. For more general topics, the date doesn't usually tell you anything about how reliable a source is.

Verified status: Some social networks like Twitter "verify" some accounts. This is usually shown with an icon like a check mark. But being verified doesn't mean the account is reliable: it *only* means that they are who they say they are.



Verifying A Website

Write a paragraph on each of the two websites. In each paragraph, say whether you think the website was reliable or not. List all of the relevant clues you found and explain why those made you think it was more or less reliable. Use the *Record Your Thinking* worksheet to help organize your thoughts.

An *excellent* response will:

- Correctly evaluate the reliability of the website
- Provide at least one example of strong signals and clearly explain how they support the evaluation
- Not include any weak signals

A *confident* response will:

- Correctly evaluate the reliability of the website
- Provide at least one example of strong signals and explain how they support the evaluation

A *competent* response will:

- Correctly evaluate the reliability of the website
- Provide at least one example of strong signals

A *beginning* response will:

- Provide at least one example of strong signals

An *insufficient* response will:

- Not provide any examples or strong signals, even if the evaluation of the website is correct



Make It Or Fake It

For this assignment you will be creating a fake website about something fake. It can be a fake animal, a fake sports team, a fake movie, a fake video game... anything you want so long as it's appropriate for class and doesn't exist.

Your website should have as many *weak signals* as possible to make it look convincing. Review the handout *Verifying a Website: Strong and Weak Signals* to make sure yours has as many as possible.

Your website should include:

A logo representing the group that runs the website. Think about logos you know and recognize: what makes them clear and memorable and makes you feel positive towards them?

- For example, the World Wildlife Fund logo uses black and white and heavy text to show that it's dealing with a serious issue, while the panda image gets across what their mission is (protecting endangered species) and makes a positive impression.



Information about the group's mission or services. What do you want people to know (or believe) about your topic? Think about ways you can make this look more convincing.

At least three different pages including a Home page. A web site includes all of the web pages that cover different topics. For example, the House Hippo Foundation website includes four main pages, Home, Resources, Get Involved and About Us, each with a separate topic. The Home page of a website introduces the topic and shows why you should care; the other pages cover more specific topics.

Graphics. Choose graphics that illustrate your site's content and will appeal to the desired audience. Here are some sources of copyright free and Creative Commons graphics you can use:

- Creative Commons search: <https://search.creativecommons.org/>
- Internet Archive image search: <https://archive.org/details/image>
- The Noun Project: <https://thenounproject.com/>
- This Person Does Not Exist (<https://thispersondoesnotexist.com/>) creates AI-generated faces you can use if you need pictures of people (all of the faces on the House Hippo Foundation site were made with this site.)

Under Canadian copyright law, you also have a Fair Dealing right to use copyrighted material for educational purposes or for non-commercial user-generated content. If you do this you must give credit to the original creator and you can't use images in ways for which the creator or owner would normally be paid. (For example, most of the images on the House Hippo Foundation site are used as Fair Dealing, but the Hippo Spotters Logo image was licensed from the creator.)

Think about these best principles of web design:

Clarity. It should not take users more than five seconds to figure out what the site is about.

Navigation: Users can move within a page (either by scrolling or with *anchor text* links to different parts of the page) and between pages. Think about these principles:

- Users should always know where they are going before they click a link.
- Users should never have to use the Back button to get back to where they were before.



- It should not take more than five seconds for users to figure out how to get anywhere on the page, or to any other page on the site.
- It should not take more than one second for users to figure out how to get back to the home page.
- Choose the right navigation tool for the job:
 - Use *headers* (at the top of the page) to let users move between the pages.
 - Use *buttons* when you want to let users do something (like signing a petition, or the Checkout button on shopping sites.)
 - Use *menus* if you need to give users a lot of choices all at once.
 - Use *links* when users know exactly where they want to go.

Consistency. Choose a single colour scheme for the site. Make sure the colour, the images and the font (what the text looks like) match the subject.

- "If you're a dentist, your visitors expect your web site to look like it belongs to a dentist — not to someone who is going to the opera." – Vincent Flanders, *Web Pages That Suck*

Simplicity. Even if your site has a lot of content, don't give it to your users all at once.

- Think about ways to let them explore it at their pace.
- Don't give users too many choices (like links) all at once. Too many choices feels stressful and confusing.
- Use lots of white space to keep them from feeling overwhelmed.
- Use colour when it has meaning (for instance by colour-coding different topics or pages) but don't use it if it isn't meaningful.

