# **Lesson Name: Evaluating Digital & Print Sources**

Level: 4-5th grade

Duration: 45 minutes

# **Learning Context**

Access to reliable and accurate information is a critical component of every stage in the Engineering Design Process. When seeking information to solve a problem, young inventors tend to use the most convenient information sources, rather than the highest quality, and often struggle with an understanding of source quality (Small, 2014).

# **Lesson Overview**

In this lesson, students are introduced to the challenges of evaluating digital and print sources as they conduct research to solve a problem. Students will use the SET Source Evaluation Tool to understand the 3 main categories for evaluating digital and print sources that will help them answer their questions and make decisions:

1. Useful – currency, accuracy and sufficiency.
2. Reliable – trustworthiness, objectivity, bias-free
3. Kid-friendly – well-organized, readable/comprehendible, accessible

# **AASL Standards:**

I, Inquire, II. Include, III. Collaborate, IV. Curate, V. Explore, V. Engage

# **Engineering Design Process:**

Ask, Imagine, Choose & Plan, Create/Build, Improve & Share

| **Essential Question:** | How do I evaluate sources used to make decisions and solve a problem? |
| --- | --- |
| **Students Will Understand:** | How to use the SET tool to evaluate sources throughout the engineering design process. |
| **Learning Objectives:** | **Students will:**   * Learn to to use the SET tool, by answering questions within the tool, to evaluate digital and print sources. * Make critical decisions to select quality sources based on their usefulness, reliability, and if they are kid friendly. |
| **Before the Lesson:** | Print [Get SET Grid](https://docs.google.com/document/u/0/d/1hJ3GTAIqkmyYiqHm1zHC8rINaGUEYTqbJy_hXd_bU1U/edit) poster |
| **Teacher Prep:** | Review the [Evaluating Digital & Print Resources PPT](https://docs.google.com/presentation/d/1lEwFHFgPrpIihmdtLKTTsXTjlbvWn9uicJYPLdHQ8Ps/edit?usp=sharing) and speaker notes |
| **Materials:** | Print individual copies of the [Get SET! Grid](https://docs.google.com/document/u/0/d/1hJ3GTAIqkmyYiqHm1zHC8rINaGUEYTqbJy_hXd_bU1U/edit) for students to use when evaluating a source (optional) |

# **Implementation**

**The teacher will pull up the** [**Evaluating Digital & Print Resources**](https://docs.google.com/presentation/d/1lEwFHFgPrpIihmdtLKTTsXTjlbvWn9uicJYPLdHQ8Ps/edit?usp=sharing) **Slides deck on the Smartboard. Teacher notes are embedded in the Speaker Notes section of the slides.**

**Hook: (10 minutes)**

Students will meet Huma & Jamilla, who are inventors trying to solve the problem of dirty water. They will find information on a bogus website to illustrate the importance of source quality.

**Discussion: How do we use Water?**

* Can you think of all the ways you use water?
* What is most important about the water you use? (e.g. adequate amount, clean, accessible)
* Not everyone has water with those characteristics.

Cleaning Dirty Water

Huma and her friend Jamila have also been learning about water as a natural resource, and the Global water crisis. They want to help solve this problem and have decided to work together to invent a way to clean dirty water. They have begun researching existing inventions on the [United States Patent & Trademark Office (USPTO) website](https://www.uspto.gov/), which will tell them about solutions that have already been created. *(Teachers can mention that the USPTO website is a good place to find information about patents and patented inventions.).*

They have also conducted a Google search, and have discovered an exciting product on a [website](http://www.dehydrated-water.com/) that could give them some ideas of how to solve this problem.

**Examine the website: Dehydrated-Water Capsules**

The website is a bogus site, which the students should discover as they examine the site. Ask students to take turns reading from the website.

* *What problem does this product solve?*
* *Is this website useful in helping Huma and Jamila to solve their problem?*
* *How can they be sure this is a high quality source?*

**Direct Instruction: (10 minutes):**

**Meet Hector**

* Hector is a kid inventor from a town called Curiosity Creek. He is in 6th grade and loves to invent. Hector loves to help fellow inventors and will help us learn more about inventing and research.
* Hector knows that successful inventors go through the engineering design process (EDP) that starts with identifying a problem and, hopefully, ends with finding a useful solution.
* During the EDP, inventors ask questions, conduct research, and make decisions, Click to see how research occurs at each stage of the process.
* It is important to make sure that the resources and information we use to answer questions and make decisions are high quality. If we don’t do that, we could go in the wrong direction, like Huma and Jamilla. That could result in wasting precious time, money and effort. Yikes!!
* But don’t worry… Get SET! is here to help!

**Get SET! Source Evaluation Tool**Get SET! is a tool to help you evaluate a source. It is quick and easy to use!

* Get SET! focuses on 3 categories: useful, reliable, kid-friendly
* How does it work? You will answer questions in each category to evaluate a source, then check the box that describes how much you agree or disagree.
* Hector will guide us in using the tool to evaluate some new resources Huma and Jamilla have found. The [Get SET! Grid](https://docs.google.com/document/u/0/d/1hJ3GTAIqkmyYiqHm1zHC8rINaGUEYTqbJy_hXd_bU1U/edit) will help us learn more about the criteria for each category.

**Guided Practice: (25 minutes)**

**What is a Useful Source?** Huma and Jamila want to learn more about the problem of dirty drinking water. What phase of the engineering design process is this? (click to see animation). The teacher will read through each of the descriptions.

**Is this source Useful?** Click on the website to have it open on the screen. Guide students through these prompts which align with the Get SET! Grid. Teacher answers are listed in blue:

* Contains information is **recent** and **up-to date**   
  ☑ ***Dated references are included at the bottom of the web page***
* Provides **accurate** (*truthful or factual*) information to help me answer questions and make decisions about my invention.  *☑* ***References at bottom of page (this may be tricky for younger students)***
* Includes the **kind of information** **I am looking for  
  ☑ *Answers the question of who has the problem and how many people it affects.***
* **Provides much of the information needed** to help me answer questions and make decisions about my invention

***☑ Yes***

☑ ***This source is useful!***

**What is a Reliable Source?** Huma and Jamila want to learn more about how the problem is currently being solved. This is the Imagine phase of the EDP. They need to make sure they can depend on it being true, especially since they were fooled by the Dehydrated Water website. (click to see animation). The teacher should ask: What does the word "reliable" mean? Can you give me an example from your own life? Tell students: “If something is reliable, you can depend on it.“ The teacher will read through each of the descriptions.

**Is this source Reliable?** Click on the website to have it open on the screen. Guide students through these prompts which align with the Get SET! Grid:

* Includes **references** to the sources used by the author  
  ☑ ***There are 2 references cited***
* Demonstrates **knowledge or expertise** of the author  
  ❌ ***Author is not fully named, lots of spelling and capitalization errors***
* Is **unbiased** and do not limit the ways I think about my invention  
  ❌***The solutions for solving the problem are not substantiated and might be opinions***
* **Points me** to other quality resources to help me answer questions and make decisions about my invention
* ☑ ***There are 2 references that can be looked up.***

❌***This source is not reliable, Huma and Jamilla should find another source to evaluate.***

**What is a Kid-Friendly Source?** Huma and Jamila want to experiment with different filtering methods

to create a solution to filter water. What part of the EDP is this? (click to see animation). The teacher will read through each of the descriptions.

**Is this source Kid-Friendly?** Click on the website to have it open on the screen. Guide students through these prompts which align with the Get SET! Grid:

* Includes **features**, like a menu or table of contents, that make it easier for me to find information I need.  
  ☑ ***Contains a materials list, “Jump To” box, and step -by-step instructions.***
* Is at **my reading level** and **easy to understand.**☑ ***The information is easy to follow and has pictures to help me understand.***
* Is **readily available** and easy to get.  
  ☑ ***The information is available from the NASA website.***
* Is **well organized** to help me find information to answer my questions or make decisions about my invention.  
  ☑ ***The source shows how to build a water filter which will help give Huma and Jamilla understand how to clean water and how this might be used in their invention.***

☑ ***This source is Kid-Friendly***

**Wrap Up: (5 minutes)**

Good Job! You now know how to use the Get SET! Categories to evaluate a source.

Get ready for our next Get SET! Lesson:

* Bring in a source you would like to evaluate that is related to your invention.
* You will use the tool to learn if your source is Useful, Reliable, and Kid Friendly.

# Differentiated Instruction

**Guided Practice Options:**

* Students use a printed checklist to follow along with each source evaluation.
* Pair students with high ability with those of lower ability to work together.