The Jefferson Performing Arts Society

Presents

A Study Companion

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JPAS Theatre for Young Audiences! Presents *I Didn't Know That!* By Johnny Saldana, Louis Maloney, Joyce Selber, and Rachel Winfree
Directed by Phillip A Benson

The Jefferson Performing Arts Society (JPAS) is pleased to present this lighthearted revue of first facts, selected oddities and world records. *The Guinness Book of World Records* is incorporated in this creative and exciting new comedy for children. *I Didn't Know That!* presents more than 50 startling facts in a 35-minute, trivia-style revue. Audiences have "ooched" and "aaahhed" in amazement to learn such fascinating facts as the first policewoman, the origins of superstitions and the world records for leapfrogging, sneezing and egg laying. Rapid-fire sketches and songs plus total reliance on ensemble acting make this comedy both simple and challenging to stage—and a world winner with young audiences.

Within this Study Companion, you will find additional facts from *The Guinness Book of World Records* as well as information on the annual *Guinness Book of World Records* Day (in case you and you students decide to try setting a world record.) Fact-finding lessons guide students through a scavenger hunt, how to separate fact from opinion, how to discover and use math facts and how to conduct research using the Internet. Each lesson includes standards from the newly-adopted Louisiana Common Core.

On the resource page there are links to some research projects being conducted right now by elementary schools around the country. These links provide ways students can be engaged with fact-finding projects going on all over the U.S.

Enjoy!
The arts facilitate interconnection. They provide tangible, concrete opportunities for students and teachers to explore academic concepts. The arts are even more critical now with the introduction of Louisiana Common Core. Common Core is replacing the system of Grade Level Expectations and Standards and Benchmarks previously used to measure student achievement. Here is some background information on Louisiana Common Core:

**COMMON CORE STATE STANDARDS**

Academic standards define the knowledge and skills that students are expected to learn in a subject in each grade. Louisiana defines academic standards for core subjects, including English language arts (reading and writing), math, science, social studies, foreign languages, physical education and health. In 2010, Louisiana adopted Common Core State Standards in English language arts and math. The Common Core State Standards define what students need to learn in reading, writing and math in each grade to stay on track for college and careers. Louisiana is aligning state assessments and end-of-course tests to the new academic standards, phasing in additional common core test items each year until completely measuring students’ achievement of the Common Core State Standards in English language arts and math in 2014-2015. Please visit this site for more information: http://www.louisianabelieves.com/academics/common-core-state-standards

For more information on the implementation of the Common Core in Louisiana, (the article and the comments that follow it) both positive and negative, please refer to: http://thehayride.com/2013/06/nieland-why-louisiana-schools-need-the-common-core/

All Common Core connections were retrieved from:

http://www.corestandards.org/ELA-Literacy
For the Record

IMAGE RETRIEVED FROM: http://www.wired.com/geekdad/2012/10/quinness-world-records-2013-ar/
The lightest solid in the world is a silica aerogel weighing 3mg per cm³. It was developed by the Jet Propulsion Laboratory, Pasadena, California, USA.
FOR THE RECORD

- WHO: SUPATRA SASUPHAN
- WHAT: HAIRIEST TEENAGER
- WHERE: PHANAKORN, BANGKOK, THAILAND

The hairiest teenager is Supatra "Nat" Sasuphan (Thailand) according to the Ferriman Gallwey method of evaluation of Hirsutism. She was measured on the set of Lo Show dei Record in Rome, Italy, on 4 March 2010.

Meeting Nat was one of the many highlights of the show for on-screen adjudicator, Marco Frigatti. "She's a remarkable little girl," says Marco. "She’s proud of who she is and wants to be treated just like everyone else. She's not the one with the problem - it's only those who treat her differently who’ve got the problem."

And Nat agrees. "I don’t feel any different to anyone else, and I’ve got lots of friends at school." Now a celebrity, she’s starting to enjoy her fame, and was thrilled by the chance to visit a foreign country. "It’s really fun and exciting," she told us, "and it’s my first time on a plane. I’ve never been outside Thailand." But her most exciting experience was the moment she was crowned Hairiest Child. "Being hairy makes me special," she said, adding: "This the happiest day of my life!"

RETRIEVED FROM: http://www.guinnessworldrecords.com/world-records/extraordinary/hairiest-teenager

Records change on a daily basis and are not immediately published online. For the most up to date record information, we welcome your questions via Facebook or Twitter.
LONGEST DURATION LIVING WITH SCORPIONS

FOR THE RECORD

- **WHO:** KANCHANA KETKAEW
- **WHAT:** LONGEST DURATION LIVING WITH SCORPIONS
- **WHERE:** THAILAND

Kanchana Ketkaew (Thailand), lived in a glass room measuring 12 m² (130 ft²) containing 5,320 scorpions for 33 days and nights at the Royal Garden Plaza, Pattaya, Thailand, from 22 December 2008 to 24 January 2009. Over the 33 days, she was stung thirteen times.

FOR THE RECORD

- **WHO:** TUBER MAGNATUM PICO
- **WHAT:** MOST EXPENSIVE FUNGUS SPECIES
- **WHERE:** ITALY

The White Truffle (Tuber magnum pico) is the world's most expensive edible fungus, fetching up to U$3,000 per kilo. They can only be found in the Italian regions of Piedmont, Emilia-Romagna, Tuscany and Marches, and the Istrian peninsula of Croatia, and because they grow about a foot underground, they can only be located with the help of trained dogs.

FASTEST 100 M ON A SKATEBOARD BY A DOG

FOR THE RECORD

- **WHO:** TILLMAN
- **WHAT:** FASTEST 100 M ON A SKATEBOARD BY A DOG
- **WHERE:** UNITED STATES

Tillman the English Bulldog covered a 100-m stretch of level car park in a time of 19.678 seconds during X Games XV in Los Angeles, California, USA, on 30 July 2009.

RETRIEVED FROM: [http://www.guinnessworldrecords.com/world-records/speed/fastest-100-m-on-a-skateboard-by-a-dog](http://www.guinnessworldrecords.com/world-records/speed/fastest-100-m-on-a-skateboard-by-a-dog)
FASTEST HALF MARATHON PUSHING A PRAM (FEMALE)

The fastest time to run a half marathon whilst pushing a pram is 1 hr 30 min 51 sec by Nancy Schubring (USA) at the Mike May Races Half Marathon, Vassar, Michigan, USA on 15 September 2001.

RETRIEVED FROM: http://www.guinnessworldrecords.com/world-records/speed/fastest-half-marathon-pushing-a-pram-(female)
The world’s longest documented hair belongs to Xie Qiuping (China) at 5.627 m (18 ft 5.54 in) when measured on May 8, 2004. She has been growing her hair since 1973 from the age of 13.

RETRIEVED FROM: http://prafulla.net/interesting-contents/wonder-world/weird-guinness-world-records/
The longest duration to maintain a Marinelli bend is 50 seconds and was achieved by Iona Oyunterel Luvsandorj (Mongolia) on the set of Lo Show Dei Record, in Milan, Italy, on 18 April 2009.

RETRIEVED FROM: http://prafulla.net/interesting-contents/wonder-world/weird-guinness-world-records/

Read more http://prafulla.net/interesting-contents/wonder-world/weird-guinness-world-records/
Largest pizza commercially available: On the menu at Big Mama’s and Papa’s Pizzeria in Los Angeles, California, USA, is an enormous 1.37 m wide (4 ft 6 in) square pizza. Retailing at $199.99 (£121) plus tax, this mammoth meal can feed up to 100 people and can be ordered for delivery – as long as you give the pizzeria 24 hours’ notice.

The world's largest playable violin, which is 4.28 metres tall, 1.45 metres wide, and weighs over 100 kilograms, was made by twelve luthiers in Markneukirchen, Germany. Pictured: Udo Kietcschmaun, Klaus Schlegel, Frank Schlegel, Ekkard Seidl with the giant violin.

The largest collection of film projectors is 1,919 achieved by Christos Psathas (Greece), in Athens, Greece, on 29 July 2011.

Christos Psathas has been collecting film projectors, cameras and cinema memorabilia since a very early age and has built up his collection over the years, including a large number of rare and unique machines.

The collection is stored in the style of a private museum and located in two different venues. Having achieved the record title Christos is now planning to enhance his collection by searching for more unique and rare machines.

GUINNESS WORLD RECORDS IS PROUD TO BE THE UNIVERSAL AUTHORITY ON WORLD RECORDS.

Get Ready to start Record Breaking!

We're the only people who assess, verify and archive the world's achievements. We take our role as the authority on record-breaking achievement very seriously.

HOW DO I APPLY TO SET OR BREAK A RECORD?

All record applications need to be submitted online, here:
http://www.guinnessworldrecords.com/set-record/

Our application process is completely free-of-charge and open to anyone wishing to attempt to earn their place in the record books.

When your application is accepted we send you the General Info pack and Record Guidelines for the specific record you wish to attempt. You will also get the Evidence Required pack which outlines the evidence you need to provide so Guinness World Records can assess the success of your record attempt.

Your complete evidence should then be mailed to our offices in London.

Our Record Adjudicators will assess your evidence and, if your attempt is verified as successful, we'll send you an official Guinness World Records certificate to confirm your record-holder status.

Please don't send us evidence without making an application first, as we will not be able to process it.

RETRIEVED FROM: http://www.guinnessworldrecords.com/set-a-record/faq/
Guinness World Record Day
Saturday, November 16, 2013

Founded:
2003 by The Guinness World Records

Record breaking attempts that are especially visual can be chosen for filming for this year's Guinness World Record Day newsreel and shown world-wide.

Pictures of attempts can also be sent into the Guinness World Record and may be used for publicity on the website or even included in next year's book.

In both 2009 and 2010, more than 300,000 people took part in attempting to break more than 50 different records.

TO LEARN MORE OR SIGN UP, PLEASE VISIT:
http://www.daysoftheyear.com/days/guinness-world-record-day/
Lesson Plans
Lesson Plan  Fact-finding scavenger hunt

Carol Rizzardi  
Newfield High School  
Selden, N.Y.

Title: Fact-finding scavenger hunt

Objective

- To learn the importance of looking up and verifying information, including "facts" that are commonly accepted and answers from "experts"
- To reinforce the responsibility of the journalist to double-check facts

Activity

Students are placed into teams and told they are going on a scavenger hunt. I then give them a list of 50 wide-ranging questions from those that can only be answered by going someplace in the community to those that require some research. Students
spend a class period in the library to get started and have two (or three) days on their own to complete the questions.

On the due date, we review questions and answers in class. The team with the most correct answers wins a prize.

Notes

I try to construct the questions to require a range of resource materials, from online resources to local phone books to almanacs, and I include a few trick questions. Sample questions are listed below.

Local information requiring students to go somewhere

- Who is the owner/operator of the 7-Eleven at Middle Country Road and Marshall Drive? There is a sign in the window with the owner’s name.
- What is the speed limit on Middle Country Road at Boyle Road? The speed limit on Middle Country Road changes. Students must go to the location to check the fact.

Trick questions requiring students to confirm "obvious" information

- In what country is the Amsterdam News printed? The Amsterdam News is a black newspaper in New York City.
- Under the Articles of Confederation, who was the first U.S. president? A great trick question because the kids will assume George Washington. So will most experts (social studies teachers) they consult. The answer is John Hansen!
- How much is admission to the Smithsonian Museums? The answer is "free."
- Where did the New York Giants play baseball? This didn't start out to be a trick question. The answer is the Polo Grounds, but the only New York Giants most of the students (and their parents!) have heard of are football players!
- What religion has the largest number of adherents in the world? I like this question because it helps emphasize the diversity in the world. The answer is Islam, but even some of my colleagues argued Christianity. It's also a question that is most easily answered by using an almanac, something my Internet devotees resist!

Listening carefully
• What are two different newspapers or magazines where Ms. Rizzardi worked? How closely did they pay attention? I use this question if I have done a class using my clips from various publications I worked for in the past. In this class, I distribute copies of my articles and encourage students to tell me what's good and what's bad about each article.

Other questions I like and why

• What is the country code for Latvia? Requires students to use a phone book.
• What four streets border the Flatiron Building? I don't tell them where the Flatiron is (New York City), so it requires them to find out that information first.
• What do Frank Chance, Joe Tinker, and Johnny Evers have in common? Baseball fans will recognize the triple-play trio, Tinker, Evers, Chance. Giving the names in a different order makes the question not as obvious.
• In the civil rights movement, what was SNCC? What did it do? Students find out about these brave young people who risked so much in the civil rights movement.
• What is a Baked Alaska? Fun question
• How do you get to LaGuardia Airport on public transportation? (no cabs) We're on Long Island where cars are ubiquitous. This question forces students to look for options to cars and to use a variety of resources.

RETRIEVED FROM:
http://www.hsj.org/modules/Lesson_Plans/detail.cfm?menu_id=&submenu_id=&module_id=2&LessonPlanId=174
Integration of Knowledge and Ideas

- [CCSS.ELA-Literacy.RI.4.7](#) Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
Fact versus opinion: Maintaining self-esteem

Distinguishing between fact and opinion is important for students to understand. This lesson uses many interesting and concrete examples to help students tell the difference between the two.

A lesson plan for grades K–5 Guidance

By Scott Ertl

Time required for lesson

45 minutes

Materials/resources

Handouts copied on construction paper, scissors, pencils, and creativity!

Pre-activities

1. Define fact and opinion. Facts can be all or some of the following: can be proven, real for all people and places, can be duplicated, can be observed, historical, or 100 percent true. Opinions refer to a particular person’s (or group’s) feeling, thought, judgment, belief, estimate, and/or anything that is not 100 percent true and can’t be proven.
2. Have students distinguish between facts and opinions:
   - All people must breathe to live.
   - All people love basketball.
   - Blue is the best color.
   - He is stupid.
   - Abraham Lincoln was a United States president.
   - North Carolina is a southern state.
   - I don’t like broccoli.
   - Fire needs oxygen to burn.
   - Pizza tastes great.
   - Most people have two arms and legs.
3. Ask students to identify books where facts can be found (encyclopedia, dictionary, almanac, atlas, text books, Guinness Book of World Records, etc.).
4. Ask students to identify books where opinions can be found. (Autobiographies, self-help books, novels, journals, etc.)
5. Students should distinguish which parts of a newspaper are factual and which are opinion. Ask them to identify the following:
   - letters to the editor
   - restaurant reviews
   - sports scores
   - weather prediction
   - birth announcements
6. Cut out newspaper and magazine advertisements and separate facts and opinions. Students will be amazed to recognize that 99 percent of ads are opinions.

**Activities**

1. Make sure students understand that just because someone else says something, it’s not necessarily a fact. It’s most likely just his/her opinion. To simply agree with someone else’s opinion is to consider it a fact and thus make it real. For example, believing others who say “You can’t play soccer very well” can either convince you to agree with them and continue being poor at soccer OR motivate you to believe “I’m better now than before and I’ll improve with even more practice!” One’s attitude of others’ opinions can either 1) encourage and help us grow and improve or 2) discourage and inhibit us from growing.

2. Have students create the “My Opinion Matters” wheel using attachment 1 and attachment 2. Students cut out the window that they will use to record in the five sections “What I can say to myself” in response to “When others say…”

3. Write on the board different comments for them to choose from, including:
   - “You can’t read.”
   - “You can’t spell.”
   - “You can’t ______.”
   - “You’re stupid.”
   - “You’re ugly.”
   - “You’re mean.”
   - “You’re lazy.”

4. Have students choose five to record on their wheel with a positive self-talk statement they can use to respond in a healthy way. For example, when someone might say, “You can’t read,” a positive self-talk statement might be “I’m reading a lot better now than before and I’ll be an even better reader by the end of this school year.”

5. After students have completed and assembled their wheels, have them share with a partner and then select volunteers to share with the entire class.

**Assessment**

Collect the “My Opinion Matters” wheels to read and determine if responses demonstrate positive messages that students can say to themselves.

Students who need additional clarification can be re-taught individually and/or in small groups.

Students who successfully completed four of the five positive self-talk responses correctly have mastered this objective.
Supplemental information

Students can create a Fact Finding Scavenger Hunt, with each student contributing different questions (that they’ve found the answer to!). The teacher can combine everyone’s question to complete the hunt. For example, students can research about your school, staff, or next unit topic with questions like:

School

• When was the school founded?
• How many students attend our school?
• What’s the record number of pizzas served in one day?
• Which grade has the best attendance?

Staff

• Where was the principal born?
• Who was Teacher of the Year last year?
• Which teacher has been at this school the longest?
• What college/university did your teacher attend?

Upcoming unit topics

• What is the largest land mammal?
• What were some of the most significant inventions during the Industrial Revolution?
• How long have women had the right to vote?
• What is necessary for fires to burn?

Comments

Students commonly believe that what is printed, aired on TV, or found on the internet are all facts. It’s critical for them to distinguish between what people say is so and what is so.

Teachers are commonly aware of the Pygmalion Effect and the Self-Fulfilling Prophecy. Both emphasize that we tend to think and behave to prove ourselves right. If we believe something will be positive, it turns out so. If we believe something will be negative, it turns out negative as well. Also, the Garbage In-Garbage Out theory that if we have stinking thinking, we will produce poor behaviors.

Therefore, it’s vital for students to create and maintain positive self-talk statements that they can use regularly to deflect others’ negative opinions. Otherwise, it will be easy for students to believe that what others say is true (fact).

RETRIEVED FROM: http://www.learnnc.org/lp/pages/4017
When others say...

✗

Cut this out

My Opinion

Matters!
"You're stupid"

I can say to myself...

"You're ugly"

I can say to myself...

"You can't read"

I can say to myself...

"You mean"

I can say to myself...

"You"
English Language Arts Standards » Reading: Informational Text » Grade 4

Key Ideas and Details

- **CCSS.ELA-Literacy.RI.4.1** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

Integration of Knowledge and Ideas

- **CCSS.ELA-Literacy.RI.4.8** Explain how an author uses reasons and evidence to support particular points in a text.

Text Types and Purposes

- **CCSS.ELA-Literacy.W.4.1** Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
  - **CCSS.ELA-Literacy.W.4.1a** Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer’s purpose.
  - **CCSS.ELA-Literacy.W.4.1b** Provide reasons that are supported by facts and details.
Doubles
Background Information & Activities

Many young learners use their fingers or counters when they first learn to add. Help your students learn strategies that help them add and subtract faster. Memorizing doubles facts will help them manipulate numbers and empower them to use multiple strategies to approach math problems.

Review with your children that a doubles fact is a number sentence that repeats the same addend, such as $3 + 3 = 6$ or $8 + 8 = 16$. Using manipulatives or other classroom materials, give students opportunities to practice combining groups with the same number. Record their number sentences on a chart for the class to use as a reference tool. Encourage your students to memorize doubles facts by making flash cards or making up songs, stories, and poems. Help them understand that they can use doubles facts to solve other number sentences too.

Ask your children to find the sum of $5 + 6$. They can use counters or their fingers, but they can also use doubles facts. If they know $5 + 5 = 10$, they know that the sum of $5 + 6$ will be one more. Thus, $5 + 6 = 11$. Practice solving other doubles-plus-one facts together, such as $3 + 4$, $7 + 8$, and $9 + 8$. Make sure children write down or say the doubles facts that can help them solve the equations. They can also use doubles-minus-one facts to help them solve equations. Write down $9 + 10$ and have your children find the sum. If they know that $10 + 10 = 20$, they know that the sum of $9 + 10$ will be one less. Thus, $9 + 10 = 19$. Practice solving different number sentences together.

Doubles facts can also be used to solve subtraction problems. Review that fact families are number sentences that use the same numbers and opposite operations, such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$. Write down $4 + 4 = 8$ and have your children find its related fact: $8 - 4 = 4$. We recommend using number triangles to help your children visualize how the numbers
and operations are related. Then challenge them to find the difference of $18 - 9$. Help your young learners understand that if they know $9 + 9 = 18$, then they know that $18 - 9 = 9$. They are related facts.

Empower children with different strategies to help them solve tricky math problems. Help them understand that there are often different ways to solve a problem. They can use the facts that they already know and apply them as they approach new problems.

See more lesson plans and resources: BrainPOP Educators.

**Doubles Teacher Activities**

**Doubles Dutch**

Exercise and do math! Divide the class into small groups and jump rope (or even double dutch) together. Call out doubles facts and have students jump rope their answer. Then have a group member call out a double fact and have other members solve. Make sure members switch roles so everyone gets a chance to jump rope and call out facts.

**Double Up**

Give every student an index card with a number. Then have students mingle around the room to find partners that are part of their doubles fact. For example, a student with the number seven will need to find students who have the number seven and fourteen. Then have the groups write down their doubles facts and related subtraction fact. Challenge students to find other ways to group (i.e. a student with the number eight can join with two fours, or find a sixteen and another eight) or combine to make doubles plus or minus one facts.
Half Off

Help your child memorize doubles facts. Use items in your home as counters. Collect and even number of items and ask your child to divide them into two equal groups. Then have him or her write out the number sentence. Repeat the activity several times or over a few days to help your child commit doubles to memory.

Double Clap

Play a clapping game that helps your child memorize doubles facts. Clap out a number and count them together. Then have your child clap out the same number. Then clap the sum together, counting up. You can clap and count to the beat of a song or sing or rap the numbers together.

RETRIEVED FROM:
http://www.brainpopjr.com/math/additionandsubtraction/doubles/grownups.weml
Use place value understanding and properties of operations to perform multi-digit arithmetic.

- CCSS.Math.Content.4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.
Essential Unit Guiding Question:
How can appropriate search terms and queries guide targeted searches?

Beginner Lesson 1:
How can I figure out the right search terms to develop a query?
How are my search terms interpreted to gather information for me?

LESSON OVERVIEW: In this lesson, the ultimate goal is for students to understand that the words they choose to type into a search tool, such as Google, have a direct connection to the sources that are suggested by their results. Within this exercise, students practice taking real-world questions and topics and converting them into a set of search terms to use for developing queries. It culminates with students identifying search terms and creating queries for their own research projects.

Take a 30-second survey to let us know how useful this lesson is!

STANDARDS:

- Grade Specific Content Standards: RI.5.3 Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
- K-12 College and Career Readiness (CCR) Anchor Standards for Writing 8: Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
- K-12 College and Career Readiness (CCR) Anchor Standards for Language 6: Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

RESOURCES/MATERIALS:

- Beginner “Picking the right search terms” Lesson Presentation (individual slides linked to proper locations within this lesson)
- Internet access (optional, but recommended)
- Video: “How Search Works” (in presentation, Slide 4)

ESTIMATED TIMING:

- approximately two 50-minute lessons
NOTE TO TEACHER: Throughout this lesson, there are opportunities to click links for search results if you have live Internet access. These links are expressed within most query brackets (e.g., [constitution]). If you do not have Internet access in your classroom, click the links for slides (e.g., Slide 7) prior to class and print out screen shots to show on a document camera to your students, on an overhead, or through hard copies. In some lesson points, there are slides only as an instructional tool. Also please note that the actual square brackets around each query should not be typed into Google. They represent what words and phrases should be actually typed into the search box.

LESSON DETAILS:

1. **Set the stage.** In this lesson, students will focus on formulating search terms to find information. Tell them they will specifically address the guiding questions: *How can appropriate search terms guide targeted searches? How are my search terms interpreted to gather information for me?* In doing so, introduce three different ways for identifying the right terms which will lead to better results. Explain that **search terms** are the individual words or sets of words you type into a search engine, such as [evaporation], [polar bear], or [fraction]. Students will choose the way that best fits with their learning style to develop key **search terms** – and ultimately **queries** (the full set of words typed into Google for a search) from these key terms – for their research task.

2. **Illustrate results of using ineffective search terms and why this happens.**
   - Before demonstrating ways to write effective key search terms and queries, demonstrate how and why poorly chosen ones can be a waste of time. You can use this script for a demonstration:
     - Tell this story: “Imagine that you are making a fan quiz about the **Percy Jackson** books. You list a whole bunch of questions and then go back and research them one by one.”
     - Let’s say you want to know: “What food does Tyson like best?” (Slide 2) Would these questions be good to type into Google for a search request? Let’s try it. Slide 3.
   - Go to Google.com. Copy and paste the question from the bullet above into Google and see what happens. If you do not have live Internet access, use Slide 3 from the presentation. Have your students observe the results and discuss what they see. They may make observations such as: “The words are not staying together,” or “Google does not know who you are asking about,” or “Lots of the little words are showing up, but I don’t see the important ones.”
   - Show the three-minute video entitled “**How Search Works**” (Slide 4 in the presentation, if you want to show it on a white background) to creatively and visually illustrate how Google uses the search terms to find information and order results. Before showing it, pose the guiding question: “How are search terms interpreted to gather information for me?”
   - Ask students to revisit the questions and results used to search for in the information about Tyson. Ask them what might have gone wrong. Students might observe: “Our question had a lot of general words,” or “Our question had unnecessary words.”
   - Tell students that this situation means you need to search for the words on the page you want to find, rather than the words that popped into your mind. You might say, “You have to search with a query that matches the words in your answer, rather than in your question. Consider what the source of the author might have said and what words he or she is likely to use to describe what you need.”
   - Now that they are more aware of how searches work, ask: “What other terms would have been more helpful in conducting this search?” Tell them you will demonstrate in different ways how to create key search terms for a research task and use them to develop a query. They will
choose which one best suits their style to develop search terms and queries for their own research tasks.

3. **Parsing a question.**

   *Parse a question to arrive at a query (group practice).*

   - Consider referring to the video, saying: “When search expert Matt Cutts was looking for how fast a cheetah can run, did he type in: ‘How fast can a cheetah run?’” When students note that he did not, that he searched *cheetah running speed*, note that effective searchers do not type full questions into search tools.

   - Explain to students that this is the first of three possible ways to show how to take a question or research need and transform it into effective search terms. Write the questions on a whiteboard or SMART Board for the question about Tyson: **What food does Tyson like best?** Mark up the questions using the following steps. Below is an explanation of each step to share with students as it relates to the original questions.

     - Circle **key words**
     - Underline “maybe” words, offer synonyms or replacement terms
     - Add **missing words**
     - Ignore **unnecessary words**

   **Explanation:**

   *Keywords.* A **key word** is a word that is essential to communicating your need. You will circle the key words to use as search terms. You may want to use different color pens for each step, as well. Ask students to help you identify the key words. Key words are often common or proper nouns, but they can also be other words, too. **Slide 6.**

   “**Maybe**” words. Next, explain that there may be words that you don’t know if you need or not. There might be different ways of expressing the same idea. Or, there might be ideas that you need to convey, but the words of the question don’t seem like the way someone might state the question in writing. You are going to underline those words, and write in a new word, if needed. This is a strategy called **alternative phrasing.** For example, you might say, “I try to imagine in my head what a newspaper article talking about this story might say—how the sentence I want to find might be worded.” You might prompt: “Is ‘like best’ the most common and straightforward way we have to express the idea of a person’s special preference? Or do we have another word for it?” **Slide 7.**
**What food does Tyson like best?**

*favorite*

*Missing words.* Ask students if there is any information missing. Remind them that the question came up in the context of writing a quiz on the Percy Jackson books so not every term that Google needs to identify sources on the proper topic is expressed in the question. Ask students to suggest information that is missing: *Slide 8.*

---

**What food does Tyson like best?**

*Percy Jackson*

*favorite*

*Unnecessary words.* You can ask students to help you select words to cross out. You might say, “If I want to remind myself not to include small words or words that I am less sure will appear in my search results, I can cross those out to be extra-clear.” *Slide 9.*

---

**What food does Tyson like best?**

*Percy Jackson*

*favorite*

- Draw on what is left to create a query to type into the search bar. Queries are expressed inside brackets to set them apart from regular text. For this exercise, the eventual query would be *[tyson favorite food percy jackson]*. *Slide 10.* Instruct students not to type the brackets in the search bar; just type the query. The same way students use quotation marks to show that someone is speaking, or a period to note the end of a sentence, Google uses brackets to show what words get typed in as a query. Note that all words in a query can be expressed in lowercase letters, as Google does not distinguish case.

- Once your class has built a query, try it out in Google, or use the query suggested in the bullet above. Look at your results and see if you can find the answer you need, or determine if you need to revise your query a bit more. You might say to students: “Searching is a process, and sometimes it might take a few tries to discover the right query. That is not a problem. Just practice looking at your results and asking yourself, ‘What happened?’” *Practice how to parse a question to arrive at a query (student).*
• Divide students into small groups and give each group a question to change into a query. Print the question on a large piece of chart or butcher paper in large font; give each group a set of colored pens. You can create your own questions, but here are some suggestions you might use:
  ○ My three-year-old cow has blisters on its tongue. What’s wrong with it?
  ○ Can I make a living tossing pizza for money?
  ○ I heard there is an abandoned city in the San Francisco Bay. What is it called?
• Reconvene as a whole class and invite each group to share its query. Discuss options as a class. When groups have finished, ask the class to arrive at a general rule that describes what they learned with this exercise. They might come up with something like: “Keep it simple. Describe what you want in as few terms as possible.” Explain that when they begin planning for their research, they can first brainstorm questions and use these questions to develop key terms for crafting a query. Next they will learn another method and will ultimately choose which one best helps them in collecting information.
• These are suggested ways you might parse and create queries from the practice questions (Slides 11, 12, 13):

  - My three-year-old cow has blisters on its tongue. What’s wrong with it?
  - [cow blister tongue sick]
  - or
  - [cattle blister tongue sick]

  - Can people earn money for tossing pizza dough?
  - [professional toss pizza]
4. **Build webs or lists.**

*Use a web to arrive at a query (teacher-led).*

- In this method, students use a web (or list) as an instrument to develop key search terms to use for their queries. For students who are having trouble thinking of keywords around a topic, this graphic organizer might be a great way to help them identify what they already know and make that terminology available for searching. For students who do not take to webs, a list is a good alternative. Keyword webs/lists are not intended to reflect the organization of any future project work. Rather, they are intended to articulate existing knowledge and will reflect additional information as students develop more knowledge and discover new search terms during the research process.

- As a class, work together to create a keyword web on a topic that is generally of interest, such as a sport, your school or state, or a subject you are currently studying in class. For example, *community helpers* is a difficult concept to search, since the sources holding the information students really need are likely to refer to one kind of worker or another, not to the overarching concept of *community helpers*. The search [community helpers](slide14) primarily retrieves teaching materials on the subject (Slide 14).

- After you finish a draft of the web, do the following:
  - Consider alternative phrasing, add synonyms for any word entries.
  - Check the synonyms and ask students to identify formal and informal pairings.
Practice how to use a web to arrive at a query (student).

- Ask students: “What do you think would happen if we entered all of the words in the search bar from your web at once?” Students might note that you would be unlikely to find any useful pages if you demand too much. Review what you learned in the last lesson as you parsed the questions to find key search terms.
- Using the tools from the parsing exercise, instruct students to work in pairs or trios to arrive at a query based on the class web. Ask volunteers to share and arrive at a few queries that would be appropriate to use for a search. If you have Internet access, try two or three of the queries and compare search results.
  - Extension: Have class work in small groups to create their own web for another topic to develop search terms and possible queries. Allow several/all groups to share with the class to provide another example other than the class-generated web.
- Differentiation: Invite more experienced searchers to create a web for query that combines several concepts, such as inventions from Italy during the Renaissance. Provide additional support to those students who need adult assistance in creating their queries.

5. **Draw on prior knowledge to build a query.**
   - Explain that there is another method researchers might use to develop queries. This method simply draws on prior exposure to material to predict good keywords.
   - Remind the class of a piece of reading they have done recently. If the whole class read the same text, you can do this activity together; otherwise, the class can work in groups based on their differentiated reading assignment. Ask students to think back on what they read individually or
in groups or text that you read as a whole class. Pose the question: “If you were going to make a vocabulary list of important words from the reading, what would they be?” You might ask students to list the five most important nouns in the piece, for example. Remind students to keep in mind that earlier in the lesson you discussed the idea of searching for the words that are in your ideal answer, rather than in your question. Together on the whiteboard, or individually or in small group on paper, record the list.

- Ask students to look at the class list or individual/small group lists and respond to this prompt: “If you needed to search for more information, what query would you create from this word list?” Invite students to share and discuss their queries.
- Emphasize that expert searchers strive to draw upon prior experiences, such as materials they have read or heard before, to pick successful search terms. Assure students that a later lesson will cover methods searchers use to discover formal terms.
  - **Differentiation.** Group students based on the reading material that they use as the basis for creating their queries.

6. **Provide additional tips for developing queries.**

- Before providing additional tips, you might suggest to students this simple rule in searching: *Identify unique words; do not have too many words; use mostly nouns.* When keeping this rule in mind, tell students that if they can draw a picture of the words in their queries, including verbs and adjectives, they are probably on the right track. In fact, as an optional exercise have students draw their queries to see if it helps them to find the right terms to use.
- **Tip #1:** Feature “What Matters in a Query?” (Slide 15) from the presentation, a figure that outlines common elements that do, or do not, affect your search. **Option:** Try out the suggested searches with your students featured in this handout if you have Internet access, or make use of the screen shots in the presentation.
- **Tip #2:** Tell students that one way expert searchers choose search terms is by imagining in their mind’s eye the source they expect to find and figuring out how to look for it. This may help them realize that they want a video instead of text, or it may help them determine how formal or informal their search terms need to be. See this example:
  - What is that little indentation in your skin above your lip called? Search and try to find out.
  - If you want to know what the dip over your upper lip and below your nose is called, you might imagine that there will be question and answer sites where people ask: “What is that thing above my lip called?” and realize that the query [thing above lip] (Slide 25) may be a very effective search. On the other hand, if you want to know what kind of medical problems can occur for that indentation, you can imagine that the source explaining it will refer to it by its formal name, philtrum, and might contain a sentence that begins: “If a patient is diagnosed with a ___ philtrum....” Emphasize to students that the query can be written formally such as [diagnosis philtrum] (Slide 26), or it might be a more informal query such as [problem with thing above lip] (Slide 27). Discuss that the way a query is written will dictate the kinds of results, so students should be mindful of the formality of their language.

7. **Create queries from key search terms.** Have students use one of the three methods introduced in this lesson to arrive at key search terms and then queries for their research task. Have them submit their queries along with the work showing how they used one of these methods to assist them in developing queries: (1) parsing, (2) web, and (3) word list based on prior experience. Students will
read the results of these queries in the following Foundational Lesson #2 to choose what sources they want to examine.

**ASSESSMENTS:**
- Participation in discussion
- Parsing, web, or word list
- Queries
- Results of search
What Matters in a Query?

<table>
<thead>
<tr>
<th></th>
<th>Every word matters.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Try searching for [who], [the who], and [a who]</td>
</tr>
<tr>
<td></td>
<td>Order matters.</td>
</tr>
<tr>
<td>2</td>
<td>Try searching for [blue sky] and [sky blue]</td>
</tr>
<tr>
<td></td>
<td>Capitalization does not matter.</td>
</tr>
<tr>
<td>3</td>
<td>Try searching for [barack obama] and [Barack Obama]</td>
</tr>
<tr>
<td></td>
<td>Punctuation does not matter.</td>
</tr>
<tr>
<td>4</td>
<td>Try searching for [red, delicious% apple&amp;] and [red delicious apple]</td>
</tr>
<tr>
<td></td>
<td>There are some exceptions!</td>
</tr>
<tr>
<td>*</td>
<td>$ C# $ C++ $ Google+</td>
</tr>
<tr>
<td></td>
<td>but not ¶ £ € © ® + $ % () or @</td>
</tr>
</tbody>
</table>

Can you think of any?  

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https://docs.google.com/document/d/1zZ6C6CN_51L9_TUIUjMJWf_yWfzAJzi8koZWVTuxxb0/edit?pli=1
English Language Arts Standards » Reading: Informational Text » Grade 4

Craft and Structure

- **CCSS.ELA-Literacy.RI.4.4** Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

- **CCSS.ELA-Literacy.RI.4.5** Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
Essential Unit Guiding Question:

How and why do researchers evaluate search results?

♦ ♦ ♦

Beginner Lesson 2:

What appears on my search results screen? Are there problems with the results, or are they on target with my task?

What do I need to know to help me choose the right links?

LESSON OVERVIEW: In Lesson 1, students identified queries around a research project. In this lesson, they learn about the elements they can expect to see in the Google results page and identify its parts (e.g., search bar, ads, natural results). They zero in on an individual search result from a query and use knowledge of its parts (e.g., web address, snippet) to make educated decisions about what the source page might contain. At the close of this exercise, students use the query from the previous lesson to anticipate web page content based on web addresses and provide a rationale for why they would choose certain sites. In the next lesson, students learn strategies to build on search results to search for and collect evidence.

Take a 30-second survey to let us know how useful this lesson is!

STANDARDS:

• Grade Specific Content Standards: RI.5.3 Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.

• K-12 College and Career Readiness (CCR) Anchor Standards for Language 6: Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

RESOURCES/MATERIALS
• **Beginner “Understanding search results” presentation** (individual slides linked to proper locations within this lesson)
• Internet access (optional, but recommended)
• “Search Results Page” (provided)
• “Monarch Web Addresses” (provided)
• “What Might You Find in These Web Addresses?” (provided)
• Queries from student research projects (from Lesson 1)

**ESTIMATED TIMING**

• Approximately two 50-minute lessons

**NOTE TO TEACHER:** Throughout this lesson, there are opportunities to click links for search results if you have live Internet access. These links are expressed within most query brackets (e.g., [constitution]). If you do not have Internet access in your classroom, click the links for slides (e.g., Slide 7) prior to class and print out screen shots to show on a document camera to your students, on an overhead, or through hard copies. In some lesson points, there are slides only as an instructional tool. Also please note that the actual square brackets around each query should not be typed into Google. They represent what words and phrases should be actually typed into the search box.

**LESSON DETAILS:**

1. **Set the stage.** Say to students: “In the last lesson, you developed queries using key search terms tied to your research projects. In this lesson, you will eventually type in these queries and examine a search results page. Today we will look at search results pages and learn what information they give to help guide you through the research process.”

2. **Examine and discuss results of a search page.**
   • Refer to the video that what was presented in the last lesson. Recall how search terms are interpreted to gather information. Emphasize that search engines cannot truly understand the context of a query the way a person can, and that they function by matching the words you type in to the words that occur on various webpages. Therefore, it is not surprising that many similar search results appear.
   • Go to Google.com and conduct a search for the query [nautilus pompilius] (Slide 2). You might say: “There are other times when, for a variety of reasons we will explore today, some results are better matched to my particular need than others. If I were looking for information on the animal called a nautilus pompilius, my first screen of results might look like this. What is going on in these results?” Emphasize to students that the search was intended for seeking information on an animal. Your students might note that many of the results are about a band called Nautilus Pompilius, rather than the animal, and the query isn’t specific enough. Ask students if they can point to cues on the page that indicate certain results are about the band. Restate that search engines cannot “understand” which interpretation of the search term a searcher intends, they can only match patterns of terms. Ask them what cues indicate that some of the results are about an animal. Students might identify cues in the actual title, the web address, a snippet (definition below) or even ads that appear. Laud them for these keen observations stating that this lesson will go into more detail about what appears on the screen.
   • Tell students that in their search process they should always carefully look at their results to make educated decisions about where to click. In fact, advise them to look past the first screen...
of results, and even past the first whole page to make smart decisions. Advise them to look at: What appears on my screen when I get results for a search? Are there problems with the results, or are they on target with my task? What do I need to know about in Google’s results to select the right link for my task?

3. **Explore the search results page.**

- Explain that each time a search engine lists a page of links to sources that it found for your query, it is called a *search results page*.
- Go to Google.com and search for [flags](https://www.google.com) (Slide 3), or a search of your liking that brings up results with advertisements.
- Identify the major parts of the search results page, recalling information from the “How Search Works” video from the previous lesson. Below is an explanation of each item to share with students as it relates to what they see on the screen. You might define each term, pause for quiet time as students locate it on the screen, have a volunteer come to the front and point to where each item is on the screen, and then ask classmates to confirm.
  - **Search bar**: near the top of the results page, where you can see your query and modify it or enter a new one. Slide 4.
  - **Ads**: results appearing in the right-hand column, and sometimes at the top of the results in a colored box. These results appear because someone paid for them to be there and only appear if they are relevant to your search. They always are marked with the word “Ads,” so you can identify paid results. Slide 5.
  - **Natural results**: These results are not paid for by anyone and cannot be bought. Google asks over 200 questions about how your query matches different pages it found on the web when deciding which pages to feature and in what order to list them. One reason search engines do not reveal more about how they rank is they don’t want people to be able to manipulate the system and get irrelevant or malicious pages highly ranked in the results. Slide 6.
  - **Filters**: the subject of later lessons, these links in the *top navigational menu*, just below the search bar on the results page allows users to look specifically at results in one kind of media, or otherwise narrow the results. Slide 7.
  - **Knowledge Panel**: When you search for an entity, such as a person, place, book, movie, character, animal, etc., Google may show a special informational box on the right-hand side of the screen. For example, one appears for the query [brazil](https://www.google.com). Slide 8.
- Pass out the “Search Results Page” handout for students to complete individually. Because the look of web-based tools changes frequently, you might want to update the one provided with your own screenshot taken closer to the time of the lesson or on a subject pertinent to your class at that time. Ask students to identify the search bar, ads, natural results, and filters on the screenshot by marking on the handout.

4. **Identify the main parts of an individual search result.**

- This section focuses on the natural search results as defined above. Elaborate that each, individual source that Google identifies as matching your query is called a *search result*. Run a search, such as [colonial life](https://www.google.com) (Slide 10), and explain that each result has several parts that can help students decide on which ones to click.
- Define and point out the following components. Invite volunteers to help you identify these components:
  - **Title**: In blue, the first line of a search result. Slide 12.
o **Web address:** In **green**, just under the title. This is the location of the page on the Web and can help you understand at a glance who is offering you the source, what kind of source it will be, and more. Slide 13.

o **Snippet:** The **black** text under the web address. This text is taken from the source to which the link points and gives an idea of how your search terms appear in the text. It is not a summary of what appears on the link, does not provide full information on a topic, and is not intended to do so. You should always click through to see your search terms (and the information they provide) in context. Slide 14.

o **Bolded words:** The words that **appear darker** on the screen are your search terms. In some cases, Google automatically finds synonyms for your search terms, so if you search for “kid,” you might see “child” bolded in your results. Slide 15.

o **Differentiation:** For more experienced readers, or older learners, introduce the term **ellipses:** Google uses three dots (…) in snippets to show places in the source where the search terms appear. Unlike ellipses used in traditional writing to show omission of text but still with a fluid thought, the ellipses in a search result are intended to show where search terms appear in the source, and so can omit portions of the text important to the actual meaning. Remind students that they should not take information from the snippet, but click through to the source itself and see the full text there. Slide 16.

Please note: For students who are writing works cited lists, it is important to note that Google’s job is to find matches to your queries and communicate to you why they were chosen so that you can decide on which links to click. As a result, Google is developed to identify relatively unhelpful page titles and auto-improve them, where possible, to something clearer, based on the content of the page. As a result, it is not appropriate to rely on Google search results to tell you the title of a page that you want to cite.

- To assess students on these terms of an individual search result, you might conduct one of these two options: (1) For an informal assessment, feature a web page on the SMART Board, document camera or overhead. Point to different aspects on the page one at a time and ask students to think about what the part is called and raise their hands without shouting it out. After a pause, call on one student to share if it is the **title**, **web address**, **snippet**, a **bolded word**, or (**ellipses**). Point to several entries on the page so you have multiple responses to ascertain how well students know these terms. (2) For a more formal assessment, pass out the “**Search Results Page**” from the previous activity and have students circle and label the terms and then collect them: **title**, **web address**, **snippet**, a **bolded word**, (**ellipses**).

5. **Read web addresses to get information about the source.**

- Explain to students that knowing how to chose the most useful links among the possible results Google offers increases their efficiency and gets them quickly to the best possible source. To begin to get an idea about a source, look at the web address. It is not a sure-fire way to know what type or quality of information the source will contain, but it can give important clues.

- Relay information about Google web addresses, and then tell students that they'll use what they learn to decode a few web addresses. Say to students: “Google usually points you to specific pages on a website, though that might sometimes be the front page, or **homepage**. It can sometimes be helpful to notice if the website on which the page is located is one you know about and if it is well-matched to your task. Sometimes, the name of the site gives you an idea about the kind of information you will find there. The name of the website is usually in the first part of
the web address located AFTER the http and www and BEFORE the “suffix,” which typically can be any of these: .com, .org, .edu, etc. However, sometimes a site may not have a www. So the page http://www.whitehouse.gov is the White House website. By looking at this key part of the search result, we can predict important information about what the source will include in order to determine if it might be worth accessing. Note that after the .com or .org or .edu, there is a string of other information.”

- Through demonstration and discussion, have students pretend that they are researching migration of Monarch Butterflies for an informational paper. Tell them that several sources include a title with the words Monarch and migration that you will show them (feature “Monarch Web Addresses” included at the end of this lesson). Then say: “Look at each web address and tell me what kind of information you’d expect to see. To help you, let’s first narrow down each web address to its core. To do this, let’s find the suffix such as .com, .org, .edu, or .tv and then look at what precedes it to get information.” Once students identify what is before the suffix, talk about what you might find using the information in the web address. Slide 17. The table below is provided to show you some sample responses about these web addresses.

<table>
<thead>
<tr>
<th>Monarch web addresses</th>
<th>What the sources might include</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. <a href="http://www.cbs19.tv">www.cbs19.tv</a></td>
<td>Local television story</td>
</tr>
<tr>
<td>b. animals.nationalgeographic.com/animals/bugs/monarch-butterfly/</td>
<td>National Geographic informational pages about different animals</td>
</tr>
<tr>
<td>c. news.nationalgeographic.com/news/2001/03/0327_monarchs.html</td>
<td>News story from National Geographic</td>
</tr>
<tr>
<td>d. <a href="http://www.teacher.scholastic.com/products/instructor/monarchs.htm">www.teacher.scholastic.com/products/instructor/monarchs.htm</a></td>
<td>Scholastic resource for teachers</td>
</tr>
<tr>
<td>e. <a href="http://www.youtube.com/watch?v=MQT51807cyM">www.youtube.com/watch?v=MQT51807cyM</a></td>
<td>YouTube video</td>
</tr>
<tr>
<td>f. askabiologist.asu.edu/explore/migrating-monarchCached</td>
<td>Questions and answers from an expert biologist</td>
</tr>
</tbody>
</table>

Have students decode the following web addresses and share what they suggest about the sources located at each. Distribute the sheet “What Might You Find in These Web Addresses?” that feature these addresses:

- www.bl.uk/onlinegallery/features/americanrevolution/index.html
- wiki.answers.com/Q/Where_was_George_Washington_born

- **Differentiation:** For individual students or classes with more computer exposure, you might try some of these more difficult web addresses:
  - bohr.winthrop.edu/faculty/grosseomne/link_to_webpages/
  - personal/InteractivePeriodicTable/PeriodicTable.html
  - www.history.navy.mil/faqs/faq56-1.htm
  - scs.student.virginia.edu/~vyij/PDF/48_249-306.pdf
  - www.mathwords.com/j/jmentgers.htm
  - www.history.navy.mil/faqs/faq56-1.htm
  - britishbattles.homestead.com/eastasia.html
Differentiation: Allow students to work individually, in pairs, or trios. As an extension, invite volunteers to visit some of these pages and see how close they were in imagining the content of selected web addresses.

6. Discuss search results. Using their queries from the previous lesson that addresses their research task (Lesson 1), instruct students to run a search and print out the first page of results. Using what they learned in this lesson, have students discuss with a partner or small group what they anticipate these sites will be about based on the web addresses. Then, ask them to circle or highlight any of the sites they will want to visit and write down why they have chosen these addresses. In the next lesson, tell students they will learn strategies to build on search results to search for and collect evidence.

Differentiation: Provide assistance to partners and groups, as needed. Collect the annotated results sheet and use it to inform instruction about which students need additional support.

ASSESSMENTS:

- Participation in discussion
- Search results page
- Individual search result: Oral responses or “Search Results Page”
- “What Might You Find in These Web Addresses?”
- Annotated page of results for research project
Directions: Circle and label the following parts on this search results page:

(1) search bar
(2) advertisements
(3) natural results
(4) filters
Monarch Web Addresses
What Might You Find in These Web Addresses?

<table>
<thead>
<tr>
<th>Web Address</th>
<th>What might you find at each address?</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.bl.uk/onlinegallery/features/americanrevolution/index.html">www.bl.uk/onlinegallery/features/americanrevolution/index.html</a></td>
<td></td>
</tr>
<tr>
<td>wiki.answers.com/Q/Where_was_George_Washington_born</td>
<td></td>
</tr>
</tbody>
</table>

RETRIEVED FROM: https://docs.google.com/document/d/1-uB1hkD0rKa0VJa4dkDdRTQZNYP8tYvxNnSYufY/edit?pli=1
English Language Arts Standards » Reading: Informational Text » Grade 4

Craft and Structure

- **CCSS.ELA-Literacy.RI.4.4** Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

- **CCSS.ELA-Literacy.RI.4.5** Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
Essential Unit Guiding Question:
How can appropriate search terms and queries guide targeted searches?

Intermediate Lesson 1:
What unique terms can I use that will help me search effectively? What are context terms? How can context terms help me target my search for what I need?

LESSON OVERVIEW: In this lesson, students learn how they can search even more effectively by selecting specific and unique terms and adding appropriate context terms (e.g., figure, map, diagram, letter) to assist them. They apply what they learn to continue their research.

Take a 30-second survey to let us know how useful this lesson is!

STANDARDS:
- Grade Specific Content Standards: RI.3.5 Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
- K-12 College and Career Readiness (CCR) Anchor Standards for Language 6: Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.
- K-12 College and Career Readiness (CCR) Anchor Standards for Writing 7: Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
- K-12 College and Career Readiness (CCR) Anchor Standards for Writing 8: Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

RESOURCES/MATERIALS:
- Intermediate ‘Picking the right search terms’ presentation (individual slides linked to proper locations below)
- Internet access (optional, but recommended)
- Video: “How Search Works” (link within presentation)
- Class textbooks

ESTIMATED TIMING:
• approximately one 50-minute lesson

NOTE TO TEACHER: Throughout this lesson, there are opportunities to click links for search results if you have live Internet access. These links are expressed within most query brackets (e.g., \[constitutions\]). If you do not have Internet access in your classroom, click the links for slides (e.g., Slide 7) prior to class and print out screen shots to show on a document camera to your students, on an overhead, or through hard copies. In some lesson points, there are slides only as an instructional tool. Also please note that the actual square brackets around each query should not be typed into Google. They represent what words and phrases should be actually typed into the search box.

LESSON DETAILS:
1. Set the stage. Students might have participated in Beginner Lesson #1, where they learned to transform questions into queries, generate search terms around a topic, and select appropriate search terms by recalling vocabulary from academic sources they have read. In this Intermediate Lesson #1, students will focus on formulating search terms to find information. Tell them they will specifically address the guiding questions shown at the top of this lesson. To address these questions, tell them you will conduct different activities around building better queries:
   - Identify primary sources by determining what is uniquely distinguishable and searchable about them.
   - Practice identifying context terms by thinking about terms that are highly evocative of a particular type of resource.
   - Explore context terms used in captions of the class textbook.

The lesson culminates with students undertaking early preparations to work on their research assignments and a chance to take the “AGoogleADay” search challenge.

2. Recall the basics of how search works. Play Matt Cutts’ three minute “How Search Works” video to remind students how Google handles queries and ranks results. Even if they saw the video in earlier years, it is a time-efficient refresher.

3. Demonstrate unique terms.
   - Explain to students that the more specific their search terms are, the more effective their results will be. Emphasize that they should find words that are unique. In other words, they should seek to find words that are often used to talk about their topics and not as frequently used to talk about other ideas. Share the following to illustrate an example:
     ○ If a student is trying to identify the origin of the quote: “Mr. Gorbachev, tear down this wall” (Slide 3), searching for [Gorbachev] might seem like a good idea since the name is not familiar. Ask students to anticipate, before showing search results, what the results for that search will yield. Specifically, if students search for just a name, what should they anticipate seeing on the screen especially if it turns out that person is famous? Students may mention the Wikipedia entry for that name, biographies of that person, other sources about that person. Display results for the search [Gorbachev] (Slide 4) and ask students to observe how well it matches their predictions.
     ○ Someone may point out that “tear down this wall” is more unique. Have students look again at the quote (Slide 5). If no one has mentioned it yet, challenge them to find a more unique way to identify the quote, and guide them, if needed, to the phrase [tear down this wall]. None of those words is individually unique, but the combination is. (Slide 6)
4. **Discover unique terms to identify mystery documents.**
   - Students now have the opportunity to experiment and discover unique terms by themselves. Ideally, individuals or small groups of students will each have a computer, but this exercise can be a student-led class exploration.
   - Select and obtain a series of documents at an increasing level of difficulty, with respect to search term choice. It might look something like this:
     - Eleanor Roosevelt’s letter of resignation from the Daughters of the American Revolution
     - 1961 Freedom Rides and associated violence
     - Rosa Parks’ arrest document, with only the section from the date to the “Value of Property Stolen” line visible
     - “Roll call 32” vote in the House of Representatives, H.R. 7152, February 10, 1964
   - Explain that you will distribute portions of real documents from our nation’s history, or another topic pertinent to your curriculum. The students’ task is to identify what the document is by figuring out what queries will best help locate it through searching, using only information visible on each document.
   - **Option:** Divide the class into pairs or trios, and see who can find the answer fastest in each group.
   - Distribute the sources one at a time. After giving students a few minutes to look for a source, have a quick debrief. Ask:
     - What worked?
     - What didn’t?
   - Discuss lesson learned:
     - Avoid unnecessary words.
     - Select unique key terms.
     - Try more than one approach, most documents have several different queries that can locate them successfully.

5. **Use context terms to assist with search.** Think back to Beginner Lesson #3, when students learned about types of sources. Generally, searchers look for the ideas they want, but savvy searchers sometimes also use context terms to describe the type of sources they want. Context terms tend to be common factors on pages holding a particular type of source. However, a context term enhances the chance of finding a source only when it is a word that will actually appear on the page. For example, the National Archives website displays the letter used in the previous exercise with the caption: “File copy of letter from Eleanor Roosevelt to president general of the DAR.” So, for that source, [letter Eleanor Roosevelt DAR] is a successful search.

6. **Visualize sources to determine context terms.**
   - Request that students close their eyes. Explain that you will say simple queries, consisting of a subject and a context term. If a query makes students clearly visualize a kind of source they should give a thumbs up, but give a thumbs down if they can’t specifically visualize it. Use a fist to show they can kind of visualize it.
   - [China map], [exports graphic], [silly cats album], [death certificate], [pioneer diary], [cell diagram], [colors in cultures infographic], [explorers document], [common denominator example]
Make a T-chart with the titles: Specific and Unspecific. From the previous list, terms that are specific and therefore make good context terms are indicated by bold typeface.

7. **Find context terms in class text.**
   - Which context terms actually make good queries? The same way experienced researchers consider the level of formality they want in sources and pick search terms at the same level of formality (e.g., [cop] or [po-po] for informal information, [police officer] for news articles, [law enforcement officer] for more formal sources), students should consider the conventions they have encountered in written language when selecting context terms.
   - For example, the class textbook may have a pie chart in it, but the caption will refer to it as a *figure*. Most likely, the word *pie chart* does not appear on the page. What context terms appear or don’t appear in the textbook?
   - Looking at the words in the specific column, think about what a person would most likely write in a source of appropriate quality to a particular research task. If a student wanted to know how the average household allocates budget to different needs, would the caption for the image be more likely to read: “This is a pie chart of an average household budget?” Or would they merely create the pie chart and have a different caption, such as: “Figure 4: Average household budget by category?” Successful searchers consider what an author might record and search with that in mind.
   - To illustrate this point, have students open to any chapter in their informational (not literature) textbook and skim for pictures. As a class or in small groups, compare and tally the context terms that appear in captions.

8. **Write query to include context terms and search.**
   - This first lesson in the Intermediate Level builds on concepts from the Beginner lessons. As students move into the searching portion of their research process, they may take one of several approaches, depending on their task. In many cases, students should start with a Plan-to-learn strategy, doing some background searching to get a feel for their topic, discover intriguing paths for inquiry, and identify strong search terms. At that point—or for students who already possess sufficient background knowledge on their topic—students can move to creating webs or lists of terms.
   - Based on this lesson, instruct students to use their note taking tool (e.g., outlines, notecards, graphic organizers, etc.) to specify terms that are relatively unique to their topic. Then, have them consider whether any of the subjects in their organizer might appear in a type of resource that suggests a context term. Conduct a search using these context terms along with topic-related terms to conduct a more efficient search.
   - Next, students develop additional search strategies as they become more adept, effective searchers.

**EXTENSION:** [AGoogleADay.com](http://www.agoogleaday.com) is a daily search challenge from Google. The questions are generally constructed to help practice keyword choice, and develop a skill for breaking a larger question into smaller pieces and determining the proper order to approach them in order to successfully discover an answer. Have students try out today’s puzzle, or [try this classic](http://www.agoogleaday.com/)

Explorers from Kushiro, Pevek and Namsos arrive at the North Pole and check their watches. If they arrived at 11:42 a.m., 12:17 p.m. and 3 a.m., respectively, which team was first? **Slides 7-8.**
ASSESSMENTS:
● Participation in activities
● Note taking (outline, notecards, graphic organizer, etc.)
● AGoogleADay path to an answer

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https://docs.google.com/document/d/1zZ6C6CN_51L9_TUIUjMJWf_yWfzAJzi8koZWVTuXxb0/edit?pli=1
Craft and Structure

- **CCSS.ELA-Literacy.RI.4.4** Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
- **CCSS.ELA-Literacy.RI.4.5** Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
Essential Unit Guiding Question:

How and why do researchers evaluate search results?

Advanced Lesson 2:

What are some strategies effective searchers use to find what they need?

LESSON OVERVIEW: In prior lessons, students have practiced paying attention to their search results page in a variety of ways, especially as the results suggest what tactical or strategic choices the searcher should make. In this lesson, students first read results to confirm if they asked the right questions, and then annotate a search results page to set up an array of tactical and strategic decisions. Then, students compile and share lists of strategies they may use while carrying out research. At the close of this exercise, they comment on a post by a research expert, sharing a strategy and search path they have successfully employed while carrying out research.

STANDARDS:

- **K-12 College and Career Readiness (CCR) Anchor Standards for Writing 2**: Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- **K-12 College and Career Readiness (CCR) Anchor Standards for Writing 7**: Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
- **K-12 College and Career Readiness (CCR) Anchor Standards for Writing 8**: Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

RESOURCES/MATERIALS

- Advanced ‘Understanding search results’ presentation (individual slides linked to proper locations below)
• Internet access (required)
• “Search Strategies” (provided)

ESTIMATED TIMING

• Approximately one 50-minute lesson

NOTE TO TEACHER: Throughout this lesson, there are opportunities to click links for search results if you have live Internet access. These links are expressed within most query brackets (e.g., [constitution]). If you do not have Internet access in your classroom, click the links for slides (e.g., Slide 7) prior to class and print out screen shots to show on a document camera to your students, on an overhead, or through hard copies. In some lesson points, there are slides only as an instructional tool. Also please note that the actual square brackets around each query should not be typed into Google. They represent what words and phrases should be actually typed into the search box.

LESSON DETAILS:

1. **Set the stage.**
• Tell students that today the class will explore a few strategies for tackling search problems. A strategy is a plan to achieve an overall aim. Students can think of it as the path they chose to follow when doing research. Tactics are the individual tools searchers use or choices searchers make when carrying out a strategy. That is to say, if the strategy is the research path, the tactics are the individual steps that move a researcher along.

• Remind students that in the Beginner and Intermediate lessons they already encountered several research strategies. Today they will learn a few more. These are not all the possible strategies, but provide a good grounding in many of the major ones students will apply regularly.

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<thead>
<tr>
<th>Lesson:</th>
<th>Strategy:</th>
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### Beginner 5: Credibility

**Comparing multiple sources**

Use tactics including looking at changes in tone among different sources, contrasting “facts” to assess accuracy, and considering purpose and audience of different sources.

### Intermediate 1: Search Terms

**Chaining**

Determine that a question can only be answered by gaining different pieces of information through a multi-step process, and planning the order in which to carry out each step to arrive at a successful outcome.

### Advanced 2: Results & Strategy

**Specialization**

Use a small piece of knowledge—only part of the whole—to discover the whole.

**Generalization**

Employ a broad topic when a specific topic is not findable. Then apply the broad source to solve the specific problem.

### Beginner 3: Evidence

**Scoping**

Recognize what kind of source will answer a question, and searching specifically within that category of source.

### Advanced 5: Credibility

**Validate assumptions**

Check that something you believe is actually true by researching it.

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- In the following lesson points, you will teach two new strategies to students: **Generalization** and **Specialization**.

2. **Triggering a generalization**.

- **Optional warm-up**: If you think it would benefit your students, start with an introduction to generalization. Set up this scenario: “Say that you are doing research on the Statue of Liberty. Which of the following titles of books or websites would be promising places to look for information for that project?” Request that students close their eyes. Explain that you will say titles of books or web pages. If a title sounds like it would offer useful information for a project
on the Statue of Liberty give a thumbs up, but give a thumbs down if the title does not sound useful. Use a fist to show they are not sure. Titles which might have good information for the project are in bold.

- **Colonial Life in the United States**
- **National Symbols**
- **Famous Landmarks in New York**
- **Abstract Art in the 20th Century**
- **Engineering Feats**
- **Mathematics the Easy Way**

- Explain that **generalization** is a strategy in which a searcher has a very specific information need, but uses a search for more general information to meet that need. Sometimes this is necessary if there does not seem to be information available, or at least findable, on the specific topic.

- Now, say: “A student is thinking about math, and is trying to figure out how to [simplify 23/44+22/23+25/26].” Invite students to figure out what they would search. Give them a few minutes to try it if the class has Internet access, otherwise, talk through it together. (Answer on Slides 2-3.)

3. **Using specialization.**

- Introduce the students to a challenge: “Your family is going on a road trip and will be passing through Texas. Your mom asks you if there is any particular route you want to take, anywhere you really want to visit. You remember a friend telling you about a trip to some city with the highest roller coaster loop in the world and doing all this other fun stuff. You don’t remember which friend. You don’t remember which city. How would you figure out which city it was? Which city was it?”

- If students have access to computers, give them a moment to try out the problem. Otherwise, brainstorm aloud about how to solve it. Students might note: “Identifying [roller coaster tallest loop] should let you figure out the name of the roller coaster and amusement park, which should lead you to the city.” Answer on Slides 4-5.

- As the opposite of generalization, specialization is a strategy to undertake when a student cannot remember, or does not know, the term for a whole, larger concept—or simply cannot find information on the whole thing. Instead, the searcher knows one component of the desired whole, and leverages that knowledge to find the information needed.

- **Optional academic example:** Ask students to: “Imagine a student who has been assigned to write about how beliefs were made visible through art in Cordoba, Spain, in the 10th Century. If the student begins with a search like [art Cordoba 10th Century], what problems might arise?” Do not show them the search until after a brief discussion. Acknowledge and respond to suggestions, and then share the results for [art Cordoba 10th Century] (Slide 6). Ask students if the search went well. They might observe that there are pages that are all about Cordoba, but
nothing really seems to be about art. They may also observe, however, that there are several mentions of categories of art that seem to be related to Cordoba and the 10th century: calligraphy, architecture, and Islamic art. Discuss the fact that art is a very broad idea, and is unlikely to appear usefully when searched for with both a specific city and a specific century. Any two of the pieces of that query might work well together ([Cordoba art] or [10th century art], for example), but the three together do not work.

- If students have not yet noticed that there are specific mentions of calligraphy, architecture, and Islamic art showing up in the results snippets, guide them to notice them there. In either case, point out that during real research, students need to click through to any results they are using to see the information in context. This is particularly important when ellipses (three dots) appear in a snippet:

  Spain Cordoba History - Spain Then and Now
  www.spainthenandnow.com/spanish.../cordoba.../default_41.aspx

  Córdoba in the 10th century was a magnet... Calligraphy was a highly valued art giving reverence to the language, and copyists were retained to reproduce ...

  Three dots in quote included in academic writing means that information has been left out, but the meaning of the quote remains essentially the same, even without it. In a Google search result, however, the three dots also mean that some words have been left out, but that is simply because Google is showing you where your different search terms appear on the page. They may not be anywhere near each other. In fact, very important information could have been left out. It is entirely possible (though not, in this case, true) that the page represented here says something like: “Cordoba in the 10th century was a magnet for people who hated art. All kinds of art were banned. It was not until the 13th century that attitudes were reversed. Calligraphy was a highly valued art....”

- If you have Internet access, look at this page with your students. As it happens, reading this page bears out the impression that calligraphy was an important art form in 10th Century Cordoba.

- Ask the students to suggest the next few steps they would take. Should the class choose to search for [calligraphy Cordoba 10th Century] (Slide 7), they may notice that calligraphy was an important part of Islamic art in 10th Century Cordoba: the architecture of mosques. A bit of poking around shows that all those aspects of art come together, with a solid list of search terms and a nice, sophisticated topic that represents—but does not include—the word art.


- Introduce students to Dan Russell’s SearchResearch blog. Point them to the post from January 3, 2012, entitled “Search strategies—What are they?” In that post, Dan asks readers to share their favorite strategies. Some possible strategies are listed above. Dan’s readers mention others in the comments. Ask your students to compose and submit their own comment on the post, sharing a strategy that they find helpful when doing research for school or daily life. Students should:
Select an appropriate example of a time they employed a search strategy to solve a problem.

In a paragraph or so, explain the problem and the strategy the student employed to solve the problem.

First create a copy of the comment to turn in for assessment purposes, then submit a copy of the comment to the blog for Dan to consider posting with the other reader comments.

In the next lesson, students will engage with a larger range of operators for narrowing their results.

ASSESSMENTS:

- Participation in discussion
- Comment on Dan Russell’s *SearchResearch* post about search strategies
## SEARCH STRATEGIES

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Craft and Structure

- **CCSS.ELA-Literacy.RI.4.4** Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.
- **CCSS.ELA-Literacy.RI.4.5** Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

Key Ideas and Details

- **CCSS.ELA-Literacy.RI.4.1** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

Integration of Knowledge and Ideas

- **CCSS.ELA-Literacy.RI.4.8** Explain how an author uses reasons and evidence to support particular points in a text.
RESOURCE LIST

http://pinterest.com.krystina_kelley/teaching-research-for-elementary-students/


http://www.edudemic.com/2012/11/students-better-online-researchers/

http://www.readwritethink.org/classroom-resources/lesson-plans/wading-through-teaching-internet-983.html#overview

http://www.commonsensemedia.org/educators/curriculum

http://www.edutopia.org/blog/elementary-research-mary-beth-hertz

http://www.readwritethink.org/classroom-resources/student-interactives/fact-fragment-frenzy-30013.html

BECOME AN INVESTIGATOR AND CONDUCT YOUR OWN RESEARCH

http://ciese.org/curriculum/squareproj/

http://ciese.org/curriculum/bucketproj/

http://ciese.org/curriculum/noonday/

http://ciese.org/curriculum/drainproj/

http://ciese.org/curriculum/weatherproj/

http://ciese.org/curriculum/treasure/

http://www.covis.northwestern.edu/