At Home Learning Resources

Grade 7 - Week 3

Grab and Go Meals
Available for Lowell Public Schools Students on Weekdays While School is Closed

<table>
<thead>
<tr>
<th>Location</th>
<th>Operating Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett</td>
<td>11:30am - 11:45am</td>
</tr>
<tr>
<td>79 Wannalunk St.</td>
<td>158 Rogers St.</td>
</tr>
<tr>
<td>Butler</td>
<td>12:15pm - 1:30pm</td>
</tr>
<tr>
<td>1140 Gorham St.</td>
<td>130 Adams St.</td>
</tr>
<tr>
<td>Greenhedge</td>
<td>10:30am - 11am</td>
</tr>
<tr>
<td>149 Linell St.</td>
<td>350 Adams St.</td>
</tr>
<tr>
<td>Lincoln</td>
<td>12:30pm - 1:30pm</td>
</tr>
<tr>
<td>300 Cheimsford St.</td>
<td>425 West Meadow Rd.</td>
</tr>
<tr>
<td>STEM Academy (Rogeria)</td>
<td>10:30am - 11:45am</td>
</tr>
<tr>
<td>43 Highland St.</td>
<td>300 Cheimsford St.</td>
</tr>
</tbody>
</table>

*STEM meal service will be available at back door at the kitchen leading into Rogers at 43 Highland St.*
You can continue the reading, writing, and vocabulary work from Week 1 OR continue online learning using tools like iReady, Lexia, Scholastic Learn OR complete the “Choose Your Own Adventure” Learning

“Choose Your Own Adventure”

This is a two week English Language Arts and Literacy exploration. Students will choose between 4 different options to pursue. Each option still requires daily reading. The goal of the project is to honor student growth and increase their learning with a project of their choice. There are different levels of independence, as well as choices for how to share their learning. (This work is borrowed from educator Pernille Ripp). Enjoy!

So what are the choices?

<table>
<thead>
<tr>
<th>Choice</th>
<th>To Do</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Choice 1: The Independent Reading Adventure</strong>&lt;br&gt;On this adventure, you will use a self-chosen fiction chapter book to show your reading analysis skills. Read and either write or record your answers to questions that show your deeper understanding of the text.</td>
<td>See instructions below for “The Independent Reading Adventure”</td>
</tr>
<tr>
<td><strong>Choice 2: The Picture Book Read Aloud Adventure</strong>&lt;br&gt;On this adventure, you will listen to a picture book being read aloud every day by lots of wonderful people. Then you will write or record a response to a specific question every day.</td>
<td>See instructions below for “The Picture Book Read Aloud Adventure”</td>
</tr>
<tr>
<td><strong>Choice 3: The Inquiry Project Adventure</strong>&lt;br&gt;Ever wanted a chance to pursue a major topic of interest for yourself? Now is the chance. Craft a learning plan, learn more about your topic, and then showcase your learning when you return to school or virtually.</td>
<td>See instructions below for “The Inquiry Project Adventure”</td>
</tr>
<tr>
<td><strong>Choice 4: The Creative Writing Adventure</strong>&lt;br&gt;Want a chance to explore creative writing? Decide how you want to grow as a writer, and then start writing. Write each day and be ready to share some of your great work when you return to school or virtually.</td>
<td>See instructions below for “The Creative Writing Adventure”</td>
</tr>
</tbody>
</table>
Choice 1: The Independent Reading Adventure

On this adventure, you will use a self-chosen fiction chapter book to show your reading analysis skills. Read and either write or record your answers to questions that show your deeper understanding of the text.

Connect Four boxes vertically, horizontally, or diagonally. The four boxes you choose must be included in your recorded or written response.

Choose Your Own Adventure -
The Independent Reading Adventure

A one-pager is an analytical, creative, and written response to a novel that completely fills one side of a piece of paper. For your one-pager, you'll want to focus on the big ideas from the novel including theme, symbolism, and character change.

Book: Grab a chapter book to do this, if you do not have one at your house you can use Audible to listen to one or Epic Books or Libby/Overdrive.

Choice in completion:
You can either type this out in a document: Google Doc, Word, Etc. OR record this in a video or audio-only format.

Details for Written Response
- Write a healthy response for each section that requires a written answer, meaning a long paragraph - not only five sentences.
- Clearly label each element of your one-pager.
- Include the title, author, genre of your book on the paper.
- Choose 4 elements to complete from the grid that are connected - they can be connected vertically, diagonally, or horizontally.
- Do this by hand by printing it out or take a picture of it.

Required Details for Recorded Response
- Brainstorm what you want to say before you record.
- Make sure you name the book and the author in your recording.
- Start each section by saying the question you are answering.
- Make sure your response answers the questions fully.
- Choose 4 elements to complete from the grid that are connected - they can be connected vertically, diagonally, or horizontally.
<table>
<thead>
<tr>
<th>Quotes:</th>
<th>Character changes:</th>
<th>Setting:</th>
<th>Song:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy down 3 meaningful quotes from the book and explain the significance of each quote. What does it infer, symbolize, suggest, relate to, etc.?</td>
<td>How does your main character start out and how do they change throughout the story? Answer thoroughly using evidence to back up your thoughts. Add two images that symbolize your character.</td>
<td>Draw or describe a background that shows knowledge of the setting of one or more important scenes for the characters, add one symbol at least from the story - write what it symbolizes next to it.</td>
<td>Find song lyrics that connect. Write the lyrics, including the song, artist, and a 2-3 sentence explanation of how the song related to the book.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting:</th>
<th>Timeline:</th>
<th>Quotes:</th>
<th>Character changes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draw or describe a background that shows knowledge of the setting of one or more important scenes for the characters, add one symbol at least from the story - write what it symbolizes next to it.</td>
<td>Create a timeline with 10 critical events in the book. The timeline must be linear or follow the plot diagram. Each event must be a complete sentence.</td>
<td>Copy down 3 meaningful quotes from the book and explain the significance of each quote. What does it infer, symbolize, suggest, relate to, etc.?</td>
<td>How does your main character start out and how do they change throughout the story? Answer thoroughly using evidence to back up your thoughts. Add two images that symbolize your character.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lessons learned:</th>
<th>Setting:</th>
<th>Character changes:</th>
<th>Quotes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add images and/or words to show lessons your main character learns throughout the book. Write about what the lessons teach them. Does this teach you any lessons?</td>
<td>Draw or describe a background that shows knowledge of the setting of one or more important scenes for the characters, add one symbol at least from the story - write what it symbolizes next to it.</td>
<td>How does your main character start out and how do they change throughout the story? Answer thoroughly using evidence to back up your thoughts. Add two images that symbolize your character.</td>
<td>Copy down 3 meaningful quotes from the book and explain the significance of each quote. What does it infer, symbolize, suggest, relate to, etc.?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Character changes:</th>
<th>Quotes:</th>
<th>Theme:</th>
<th>Setting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does your main character start out and how do they change throughout the story? Answer thoroughly using evidence to back up your thoughts. Add two images that symbolize your character.</td>
<td>Copy down 3 meaningful quotes from the book and explain the significance of each quote. What does it infer, symbolize, suggest, relate to, etc.?</td>
<td>What is the theme statement of your book and how do you know? Answer thoroughly using evidence to back up your thoughts. Add an image that symbolizes the theme</td>
<td>Draw or describe a background that shows knowledge of the setting of one or more important scenes for the characters, add one symbol at least from the story - write what it symbolizes next to it.</td>
</tr>
</tbody>
</table>
Choice 2: The Picture Book Read Aloud Adventure

On this adventure, you will listen to a picture book being read aloud every day by lots of wonderful people. Then you will write or record a response to a specific question every day.

Choose Your Own Adventure - Picture Book Read Alouds and Analysis

Love picture books being read aloud? Me too! Here is your chance to listen to a different picture book being read aloud every day and analyze the book using the question asked each day.

Project requirement:
- Watch the video posted for each day in the table below.
- Respond either in writing or by posting a recording of your answer.

Choice in completion:
You can either type this out in a document: Google Doc, Word, etc. OR record this in a video or audio-only format

Details for Written Response
- Write a healthy response for each question meaning a long paragraph - not only five sentences.
- You should use evidence from the read aloud to support your analysis. You can use either a quote (stop the video to write it down) or refer to a specific section of the picture book.
- Include the title of your book on the paper.

Details for Recorded Response
- Brainstorm what you want to say before you record.
- Make sure you name the book and the author in your recording.
- Start each recording by saying the question you are answering.
- Make sure your response answers the questions fully.

<table>
<thead>
<tr>
<th>Day</th>
<th>Title of Picture Book</th>
<th>Video link</th>
<th>Questions to discuss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>A Tale of Two Beasts</td>
<td><a href="https://www.storylineonline.net/books/tale-of-two-beasts/">https://www.storylineonline.net/books/tale-of-two-beasts/</a></td>
<td>In the picture book, we see two very different versions of the same story. Why did the girl believe her version of the story was the right one? What does this remind you of in your own life?</td>
</tr>
<tr>
<td>Day 2</td>
<td>Each Kindness</td>
<td><a href="https://www.youtube.com/watch?v=kj7Oc0ZoOjM">https://www.youtube.com/watch?v=kj7Oc0ZoOjM</a></td>
<td>What is the theme of Each Kindness? How do you know?</td>
</tr>
<tr>
<td>Day 3</td>
<td>The Heart and the Bottle</td>
<td><a href="https://www.youtube.com/watch?v=8FSuy-J_Pzk">https://www.youtube.com/watch?v=8FSuy-J_Pzk</a></td>
<td>What does placing her heart in a bottle symbolize? How do you know?</td>
</tr>
<tr>
<td>Day 4</td>
<td>The Bad Seed</td>
<td><a href="https://www.youtube.com/watch?v=uqsGoiz-ufg&amp;list=PLiYZMwyBPG96EDjV7MAohaCNXoQnqiBmG&amp;index=20&amp;t=0s">https://www.youtube.com/watch?v=uqsGoiz-ufg&amp;list=PLiYZMwyBPG96EDjV7MAohaCNXoQnqiBmG&amp;index=20&amp;t=0s</a></td>
<td>In the book, the people who surround our main character see a certain way - how do you think the perception of others influences him and his actions? How do you connect to this story?</td>
</tr>
<tr>
<td>Day 5</td>
<td>We are Water Protectors</td>
<td><a href="https://youtu.be/N-zPU4iSpco">https://youtu.be/N-zPU4iSpco</a> AND <a href="https://bioneers.org/the-native-american-prophecy-of-the-black-snake/">https://bioneers.org/the-native-american-prophecy-of-the-black-snake/</a></td>
<td>What is the black snake that is poisoning the water, plants, animals, and land? Discuss how and why the Black Snake is used as a symbol of destruction throughout the book.</td>
</tr>
<tr>
<td>Day 6</td>
<td>Pride: The Story of Harvey Milk and the Rainbow Flag</td>
<td><a href="https://www.readbrightly.com/brightly-storytime-pride/">https://www.readbrightly.com/brightly-storytime-pride/</a></td>
<td>The Rainbow Flag has been used as a symbol of hope since 1978. Why are symbols such as flags often used in movements, how can symbols pull us together around a cause?</td>
</tr>
<tr>
<td>Day 7</td>
<td>Wolfie the Bunny</td>
<td><a href="https://www.youtube.com/watch?v=BiU0Z9P2E4s">https://www.youtube.com/watch?v=BiU0Z9P2E4s</a></td>
<td>What did Dot use as evidence for her perception of Wolfie? How did her perception influence how she viewed Wolfie? How does this tie in with your own life?</td>
</tr>
<tr>
<td>Day 8</td>
<td>On the Day You Begin</td>
<td><a href="https://www.readbrightly.com/brightly-storytime-the-day-you-begin/">https://www.readbrightly.com/brightly-storytime-the-day-you-begin/</a></td>
<td>How does our main character change throughout the story? How do you know? How does this story connect with your own life?</td>
</tr>
<tr>
<td>Day 9</td>
<td>The True Story of The Three Little Pigs</td>
<td><a href="https://www.youtube.com/watch?v=1Q01X8JU3GU">https://www.youtube.com/watch?v=1Q01X8JU3GU</a></td>
<td>How does hearing the perspective from the Wolf show us what we have missed? What happens to our understanding of the world when we only believe or see one side of the story?</td>
</tr>
<tr>
<td>Day 10</td>
<td>Your Choice</td>
<td>Visit the LPS Virtual Read Aloud Page and choose a book to listen to. <a href="https://www.youtube.com/channel/UCMIqoXopDU-6yfq5pJIPRtg">https://www.youtube.com/channel/UCMIqoXopDU-6yfq5pJIPRtg</a></td>
<td>What did the author want you to learn? What language stood out to you? How does the main character change throughout the story? How do you know?</td>
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</tbody>
</table>
Choice 3: The Inquiry Project Adventure

Ever wanted a chance to pursue a major topic of interest for yourself? Now is the chance. Craft a learning plan, learn more about your topic, and then showcase your learning when you return to school or virtually.

Choose Your Own Adventure - Inquiry Project

Passionate or curious about something? Now is the chance. Craft a learning plan, learn more about your topic, and then showcase your learning when you return to school or virtually.

Project Requirements:
- Identify an inquiry question you want to pursue (something you want to learn more about) - remember inquiry questions are not straight “Googleable,” they will need learning from many sources or experiences to answer.
- Fill in the learning plan to show what you will be learning and how you will challenge yourself.
- Do the learning on your own or with your family.
- Create a product to showcase your learning - you have many choices of what to create.

Independence Expectations:
- This is a project that will require a lot of discipline and focus. You are not creating a day-to-day project, so you are expected to produce a larger final product to share your learning.
- The inquiry question you choose to pursue can be one that you already know something about or one that you know very little about.
- There should be NEW learning throughout, not just a summary of what you already know.

Details for End Product
- Your end product can take many forms: A podcast, a story, a presentation, a speech, a stop motion animation, a PSA, or something else you imagine.
- Your end product should showcase new learning for you, as well as be accessible to your intended audience - your peers.
- Your end product should have citations of any information you have used.
- Your end product should take at least 5 minutes for an average peer to either listen to or explore.
<table>
<thead>
<tr>
<th>Day</th>
<th>What is your plan for learning for this day?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td></td>
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<tr>
<td>Day 2</td>
<td></td>
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<tr>
<td>Day 3</td>
<td></td>
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<tr>
<td>Day 4</td>
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<tr>
<td>Day 5</td>
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<tr>
<td>Day 6</td>
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<td>Day 7</td>
<td></td>
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<tr>
<td>Day 8</td>
<td></td>
</tr>
<tr>
<td>Day 9</td>
<td></td>
</tr>
<tr>
<td>Day 10</td>
<td></td>
</tr>
</tbody>
</table>

What is your inquiry question?

How much do you already know about this topic?

- Very little
- Average amount - I know some stuff but not anything in-depth
- A lot - I have done inquiry into this
- Expert level (how will you challenge yourself then)

How will this project challenge you?

What types of resources do you plan on using?

How will you know you have successfully learned something?

What do you plan on creating to show off your newfound knowledge? What is your end project idea?
Choice 4: The Creative Writing Adventure

Want a chance to explore creative writing? Decide how you want to grow as a writer, and then start writing. Write each day and be ready to share some of your great work when you return to school or virtually.

Choose Your Own Adventure- Creative Writing

Have a story to tell? Here is your chance to use dedicated time to pursue your own writing craft and put some of those sweet writing moves you have been working on into action.

Project requirement:
- Identify your areas of strength as a writer - what do you already do well in writing?
- Identify areas of growth in writing for yourself - how will this project challenge you?
- Produce two or more pages each day in the writing form you choose - narrative, informational, opinion or argument, essay, poem, song, graphic novel

Independence expectations:
- This is a project that will require a lot of discipline and focus. You are not creating a day-to-day project, so you are expected to produce a larger final product to share your learning.
- The creative writing project you choose to pursue can be one that you already know something about or one that you know very little about.
- There should be NEW learning throughout, not just a summary of what you already know.

Day-by-Day Breakdown

<table>
<thead>
<tr>
<th>Day</th>
<th>What is your plan for learning for this day?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td></td>
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<tr>
<td>Day 2</td>
<td></td>
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<tr>
<td>Day 3</td>
<td></td>
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<tr>
<td>Day 4</td>
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<td>Day 5</td>
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<td>Day 6</td>
<td></td>
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<td>Day 7</td>
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<tr>
<td>Day 8</td>
<td></td>
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<tr>
<td>Day 9</td>
<td></td>
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<tr>
<td>Day 10</td>
<td></td>
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<tr>
<td>How solid of a writer are you already?</td>
<td></td>
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<tr>
<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>___ On shaky ground, I have a lot of growth to do</td>
<td></td>
</tr>
<tr>
<td>___ Fairly average</td>
<td></td>
</tr>
<tr>
<td>___ Pretty good</td>
<td></td>
</tr>
<tr>
<td>___ Expert level (how will you challenge yourself then?)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How will this project challenge you?</th>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>What types of specific writing lessons do you want to focus on:</th>
</tr>
</thead>
<tbody>
<tr>
<td>___ Finding ideas of what to write about</td>
</tr>
<tr>
<td>___ Expanding and strengthening your original idea</td>
</tr>
<tr>
<td>___ Fully developing a plot</td>
</tr>
<tr>
<td>___ Adding descriptive details to help your reader visualize</td>
</tr>
<tr>
<td>___ Creating worthwhile characters</td>
</tr>
<tr>
<td>___ Manipulating time to move your story along</td>
</tr>
<tr>
<td>___ Adding dialogue to add interest</td>
</tr>
<tr>
<td>___ Making it have a turning point or some sort of climax</td>
</tr>
<tr>
<td>___ Adding details</td>
</tr>
<tr>
<td>___ Cutting out details</td>
</tr>
<tr>
<td>___ Making it make sense</td>
</tr>
<tr>
<td>___ Spelling</td>
</tr>
<tr>
<td>___ Punctuation</td>
</tr>
<tr>
<td>___ Other:</td>
</tr>
<tr>
<td>___ Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How will you know you have successfully learned applicable writing skills?</th>
</tr>
</thead>
</table>
Understanding Proportional Relationships

Read and solve the problems. Show your work.

1. Josie is making pizza dough. Complete the double number line by filling in the missing values. Then write an equation that models the relationship between the total cups of flour, \( c \), and number of batches, \( n \). Show your work.

<table>
<thead>
<tr>
<th>Cups of Flour</th>
<th>0</th>
<th>3/4</th>
<th></th>
<th>3</th>
<th>3 3/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batches</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

Lilli bought each of her friends a pair of colorful socks that cost $5.50. Complete the table to show how much Lilli paid to buy different numbers of socks. Then write an equation that shows the total cost, \( c \), for \( p \) pairs of socks.

<table>
<thead>
<tr>
<th>Cost</th>
<th>$11.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pairs of socks</td>
<td>1 2 3</td>
</tr>
</tbody>
</table>

3. Explain how using a table is similar to using a double number line and how it is different.

4. Mrs. Lopez types at a constant rate. The constant of proportionality for the relationship between the number of words she types, \( w \), and the number of minutes she types, \( m \), is 38. Write an equation to show this relationship.
Interpreting Graphs of Proportional Relationships

The graph shows the cost of apples at a local market. Use the graph to answer problems 1–3.

1. What is the cost of 1 apple and of 3 apples? How do you know?

2. What does the point (0, 0) represent in this context?

3. What does the point (2, 1.5) represent in this context?

The graph shows Manuela’s earnings for the number of hours she spends tutoring. Use the graph to answer problems 4 and 5.


5. Write an equation that shows the relationship between Manuela’s earnings, y, and hours, x.
Interpreting Graphs of Proportional Relationships  continued

The graph shows the distance Jason’s family traveled on a recent road trip. Use the graph to answer problems 6–8.

6 What is the constant of proportionality? Explain how you know.

7 Identify and interpret one other point on the graph.

8 Write an equation that models the distance, $d$, traveled in $t$ hours.

The graph shows the cost per pound of chicken salad. Use the graph to answer problems 9 and 10.

9 Randy claims that he can purchase 3.5 pounds of chicken salad for $23.50. Is he correct? Explain.

10 Explain how you can determine how much chicken salad may be purchased for $52.50.
Recognizing Graphs of Proportional Relationships

Circle all the problems with graphs that do NOT represent a proportional relationship. For the problems that are circled, explain why the graphs do not represent a proportional relationship.

1. [Graph]

2. [Graph]

3. [Graph]

4. [Graph]

5. [Graph]

6. [Graph]
Recognizing Graphs of Proportional Relationships  continued

7

8

9

10

11 Without analyzing specific points on a graph, explain how you know whether a graph shows a proportional relationship.
Solving Multi-Step Ratio Problems

Solve each problem.

1. At The Green House of Salad, you get a $1 coupon for every 3 salads you buy. What is the least number of salads you could buy to get $10 in coupons?

2. Kim orders catering from Midtown Diner for $35. She spends $5 on a large order of potato salad and the rest on turkey sandwiches. Each sandwich is $2.50. How many sandwiches does Kim buy?

3. Molly and Liza are exercising. Molly does 10 push-ups at the same time as Liza does 15 push-ups. When Molly does 40 push-ups, how many push-ups does Liza do?

4. A shark swims at a speed of 25 miles per hour. The shark rests after 40 miles. How long, in minutes, does the shark swim before resting?

5. Ali and Janet are selling gifts at a local craft show. For every bar of soap that Ali sells, she earns $5. For every mug that Janet sells, she earns twice as much as Ali. Ali sells 5 bars of soap, and Janet sells 7 mugs. How much money did they make altogether?

6. Ted is making trail mix for a party. He mixes $1 \frac{1}{2}$ cups of nuts, $\frac{1}{4}$ cup of raisins, and $\frac{1}{4}$ cup of pretzels. How many cups of pretzels does Ted need to make 15 cups of trail mix?

7. The ratio of chaperones to students on a field trip is 2 : 7. There are 14 chaperones on the field trip. In all, how many chaperones and students are there?

8. Dayren is driving to visit family. She drives at an average of 65 miles per hour. She drives 227.5 miles before lunch and then 97.5 miles after lunch. How many hours did she spend driving?
Solving Problems Involving Multiple Percents

Solve each problem.

1. A chair’s regular price is $349. It is on clearance for 30% off, and a customer uses a 15% off coupon after that. What is the final cost of the chair before sales tax?

2. A calculator is listed for $110 and is on clearance for 35% off. Sales tax is 7%. What is the cost of the calculator?

3. Cara started working for $9 per hour. She earns a 4% raise every year. What is her hourly wage after three years?

4. A factory manufactures a metal piece in 32 minutes. New technology allowed the factory to cut that time by 8%. Then another improvement cut the time by 5%. How long does it take to manufacture the piece now? Round your answer to the nearest minute.

5. An apartment costs $875 per month to rent. The owner raises the price by 20% and then gives a discount of 8% to renters who sign an 18-month lease. How much less do renters who sign an 18-month lease pay per month to rent the apartment?
Solving Problems Involving Multiple Percents  continued

6  Damon buys lumber worth $562. He gets a 20% contractor’s discount. The sales tax is 6%. His credit card gives him 2% off. How much does he pay?

7  Cindy is shopping for a television. The original price is $612. Store A has the television on clearance for 30% off. Store B has it on clearance for 25% off, and Cindy has a 10% off coupon to use at Store B. At which store will she pay less? How much less?

8  John goes to a restaurant and has a bill of $32.57. He uses a 10% off coupon on the cost of the meal. The tax is 8%. He leaves a tip of 18% on the amount before the coupon or tax is applied. How much does he spend?

9  Explain which situation will give you the best price: a discount of 15% and then 10% off that amount, a discount of 10% and then 15% off that amount, or a discount of 25%.
Solving Problems Involving Percent Change

Find the percent change and tell whether it is a percent increase or a percent decrease.

1. Original amount: 20
   End amount: 15

2. Original amount: 30
   End amount: 45

3. Original amount: 625
   End amount: 550

4. Original amount: 320
   End amount: 112

5. Original amount: 165
   End amount: 222.75

6. Original amount: 326
   End amount: 423.80

7. Original amount: 27
   End amount: 38.61

8. Original amount: 60
   End amount: 70.02

9. How do you know when a situation involves a percent increase or a percent decrease?
Solving Problems Involving Percent Error

➤ Solve each problem. Round to the nearest hundredth of a percent if needed.

1. Mrs. Rowan allotted 30 minutes at the beginning of class for her students to complete an exam. The last student took 42 minutes to complete the exam. What is Mrs. Rowan’s percent error?

2. Harper needs to mail an envelope. She weighs it at home as 10.4 ounces. When she gets to the post office, the clerk weighs it at 9.6 ounces. What is the percent error in the weight of the envelope?

3. An airline ticket states that the flight takes 2 hours and 45 minutes. The flight time is actually 2 hours and 54 minutes. What is the percent error in the flight time?

4. Luna buys a shirt that costs $15.65. She gives the cashier $20 and receives $3.25 in change. What is the percent error in the amount of change she was given?

5. Judy thinks there will be 325 people at the county fair on Friday, while Atticus thinks there will be 600 people. On Friday, 452 people attend the fair. Who is closer in their estimate? What is the difference between the percent errors?

6. Sussex County received 43 inches of rainfall this year. The percent error in the local meteorologist’s rainfall prediction was about 18.02%. What are two possible values for the meteorologist’s prediction?
WATERCRAFT

YOUR CHALLENGE

Design and build a boat out of straws and plastic wrap that can hold 25 pennies for at least ten seconds before sinking.

BRAINSTORM & DESIGN

Look at your materials and think about the questions below. Then sketch your ideas on a piece of paper or in your design notebook.

1. How will you make a boat that floats well enough to support a heavy load without sinking?
2. Should your boat be a platform (e.g., a raft or barge) or an open boat (e.g., a rowboat or canoe)?
3. What’s the best way to make your boat waterproof?
4. How big do you need to make your boat to hold 25 pennies?

BUILD, TEST, EVALUATE & REDESIGN

Use the materials to build your boat. Then test it by floating it in a container of water and adding pennies, one at a time. When you test, your design may not work as planned. When engineers solve a problem, they try different ideas, learn from mistakes, and try again. The steps they use to arrive at a solution is called the design process. Study the problems and then redesign. For example, if the boat:

- sinks easily—Increase its ability to float. When you set your boat in water, notice how it sinks down a bit, pushing aside some water. The water pushes right back, pressing on the boat’s bottom and sides. The force from these pushes is called buoyancy. To change your boat’s buoyancy, experiment with the boat’s width and the height of its sides.
- leaks a lot—See if the straws are filling with water or if the plastic wrap is separating.
- tips easily—Check how near the weights are to each other. A boat can get tippy when one part is heavier than another.

KEEP YOUR BOAT FOR ANOTHER DESIGN CHALLENGE NEXT WEEK!
TAKE IT TO THE NEXT LEVEL

- Ready for some heavy lifting? Change your boat so it holds 50 pennies for at least ten seconds before sinking.
- Less is more! Build another boat that can hold 25 pennies, but use only half the amount of materials that you used for your first boat.

ENGINEERING IN ACTION

Windsurf across an ocean? In 2006, Raphaëla le Gouvello windsurfed 3,541 miles across the Indian Ocean—a record-setting first! Raphaëla first discovered windsurfing while on a family vacation. Soon, the idea of windsurfing across an entire ocean caught her imagination. To turn her dream into reality, she teamed up with engineer Guy Saillard. His challenge was to make her a sailboard she could live on. For years, Guy had experimented with new ways to use durable hi-tech materials such as epoxy resin, carbon fiber, and foams. For Raphaëla, he designed a strong, lightweight, 25-foot-long sailboard. It has a sleeping compartment, a shower, and its own satellite communication system—all the comforts of home.

Or not! The cabin was only 8 feet long, 20 inches wide, and 31 inches high (slightly bigger than a coffin). If an engineer could build you the boat of your dreams, would you want to take a trip like Raphaëla’s? Here’s a snapshot:

- **Length of trip:** Two months.
- **Time sailed each day:** Seven hours.
- **Time spent sleeping:** Seven hours.
- **Weight of her first-aid kit:** 26 pounds.
- **Other things she did each day:** Send e-mail, check her course, get weather reports, talk to her support team by radio, relax, and make and eat meals.

- **Amount of water she used per shower:** A half gallon. The average shower in the US uses 18 gallons! Her boat only holds five gallons, but it has a solar-powered device that makes fresh water by taking the salt out of seawater.

Watch the DESIGN SQUAD PVC Kayak episode on PBS or online at pbs.org/designsquad.
Ancient Greece was made up of several small city-states, including Athens and Sparta. Democracy began in Athens around 500 B.C., about 2,500 years ago. In ancient Greek democracy, citizens were given the right to vote.

Not everyone in Athens was considered a citizen, however. Only free, adult men enjoyed the rights of citizenship. That meant that only about 1 out of 5 people in Athens was a citizen. Women were not citizens and therefore could not vote or have any say in the political process. They were rarely permitted out in public and were even restricted as to where they could go in their own homes. Slaves and foreigners were not citizens either. In the end, democracy existed only for the free men who were originally from Athens.

Nevertheless, the idea of democratic government is one of the most significant contributions of the ancient Greeks. Athens had one of the largest democracies in terms of population.

Political Reformation
Early in Athens' history, a man named Solon made political reforms. These helped reduce the growing gap between the rich and the poor. Poor citizens gained the right to sit in the assembly and vote. The assembly was responsible for electing military and other leaders.

Later, Cleisthenes expanded the democracy by giving every citizen equal rights. He also created a group of lawmakers for Athens. They were picked randomly from the general population of citizens.

When there was an assembly meeting, the citizens of Athens would usually gather in the agora. This was a large open space in the middle of the city. It contained a marketplace as well as government buildings. In the agora, citizens would discuss the issues of the day before gathering for the assembly meeting. During the meeting, citizens were free to share their opinions and cast their votes.

The courts were also usually in the agora. The juries in court cases were very large, often numbering in the hundreds and sometimes in the thousands. To be fair, Athenians wanted their juries to reflect the general population. There were no lawyers, because each citizen was expected to make his own case.

**Every Citizen Participated**

In Athens, the people governed and the majority ruled. All citizens had equal rights and powers. Athenian democracy depended on every citizen fulfilling his duty. All citizens were expected to vote, but they were also expected to serve in the government if necessary. Every citizen was required to take part or suffer punishment. In this sense, modern democratic governments are quite different. For example, in the United States, citizens are free to choose whether or not they wish to vote.

In a city-state as small as Athens, a pure democracy was possible. But as states grew larger, democracy changed. It became more practical for people to elect representatives to make decisions for them. But the notion that every citizen has a voice important enough to be heard began in ancient Athens.
Ancient Greeks Wouldn't Call U.S. a Democracy – They’d see an Oligarchy

By The Conversation, adapted by Newsela staff on 08.17.17
Word Count 716
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Temple of Hephaestus in Athens. This building is in the agora, the place where citizens would meet and make important decisions about the city's future. Photo: Sharon Mollerus/Wikimedia.

Much of the language we use to talk about politics comes from ancient Greece. For example, words like "democracy" and "anarchy" are Greek. Democracy means "rule by the people," and refers to a system where power is shared by all citizens. Anarchy means "without ruler," and describes a system in which no one is in charge.

There is another Greek word that's useful for today's politics: oligarchy. Oligarchy means "rule by the few." Oligarchies are societies in which a small group of powerful citizens controls the government.

Most advanced countries today are called representative democracies. That means that power is shared among the people, but not directly. The people vote for representatives, or politicians, to join the government. These leaders are the ones who make decisions for everyone else.

If ancient Greeks had a chance to see today's governments, they would call them oligarchies, not democracies. That is because most people today don't actually rule over themselves.
The wealthy and powerful are represented

What most citizens can do is vote in elections. This is when they choose their leaders and decide on some laws. Yet, elections only happen once every few years. Usually, voters can only decide on a leader, not on what that leader should actually do.

For the ancients, this would not count as participation. Political participation meant having a say in the day-to-day decisions of government. In ancient Athens, at one point, citizens met every nine days to decide on what the state should do. In these mass meetings, laws were debated, approved or disapproved.

Most modern citizens do not rule themselves but are ruled by their representatives instead. The politicians who are supposed to represent the citizens often don't. Instead, they end up representing a small group of people: the wealthy and powerful. The reason for this has a lot to do with inequality.

Democracy in Greece was not perfect. Not everyone was free, and not everyone could join the Athenian meetings. Women and slaves, for example, did not have a say in politics. Still, the meeting did include thousands of citizens who could rule themselves.

The rich have control

Modern societies are also very unequal. A tiny number of people own as much as everyone else in the world. These are the richest people in the world. When wealth is unbalanced, so is power. Those at the top have taken control of societies that are supposed to be democracies.

One way they have done this is by using money to control elections. Elections are not "free and fair" but are usually won by the side that spends the most money. As a result, no political party comes to power without being backed by rich corporations, or other big businesses. Corporations, then, have just as much say as voters do, if not more.

Since the rich and powerful are few, they are often called out as oligarchs.

Let's improve the state of democracy

"Democracy" is a word with several meanings. To ancient Greeks, it meant something like "people power." By that definition, however, most of our modern democracies are not democracies at all. They do not truly put the power of government in the hands of its citizens.

Winston Churchill was the prime minister of England. He once described democracy as the worst of all systems of government, except for all the rest. Democracy is not perfect, but there might not be a better option.
That should not be a reason for us to continue ignoring the various ways that our modern democracies fail us. We need to be honest about the state of democracy and do what we can to improve it. The ancient Greeks can help show us the way.

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QUESTIONS:

Which form of government do you think the U.S. government should be like and why? Why is the Greek form of democracy hard for us to implement in the United States?
1. Her name is Mary. She is 13 years old. Her hobby is playing piano.

2. His name is ______________________. He is ___________ years old. His hobby is ______________________.

3. Her ______________________. She ______________________. Her hobby ______________________.

4. ______________________. ______________________. ______________________.

5. ______________________. ______________________. ______________________.

6. ______________________. ______________________. ______________________.

His  He  Her  She
skiing   riding his bike   playing baseball
playing piano   swimming   playing soccer