KCS@home

Fourth Grade
Math

Work with Whole Numbers
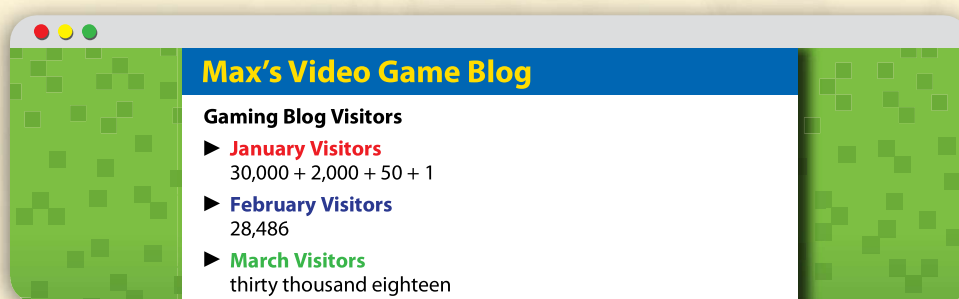
Study an Example Problem and Solution

Read this problem about adding whole numbers. Then look at Max's solution to this problem.

Blog Site Visitors

Max posts the number of visitors to his gaming blog.

Max's Video Game Blog

Gaming Blog Visitors
▶ **January Visitors**
  30,000 + 2,000 + 50 + 1
▶ **February Visitors**
  28,486
▶ **March Visitors**
  thirty thousand eighteen

In his April blog, Max will post hints about a popular new computer game. He sets some goals for the number of visitors he hopes to get in April.

- Get more than the total of two of the months combined.
- Get between 999 and 9,999 more visitors than this total.

What is a number of visitors that would meet Max's goal? Tell why your number works.

Read the sample solution on the next page. Then look at the checklist below. Find and mark parts of the solution that match the checklist.

✏️ **Problem-Solving Checklist**

☐ Tell what is known.

☐ Tell what the problem is asking.

☐ Show all your work.

☐ Show that the solution works.

a. Circle something that is known.

b. Underline something that you need to find.

c. Draw a box around what you do to solve the problem.

d. Put a checkmark next to the part that shows the solution works.

Max's Solution

▷ **I need to find the total visitors for two months combined.**

I know that I can pick any two months. I'll use February and March.

▷ **Next, I write the number for March in standard form.**

thirty thousand eighteen = 30,018

▷ **Then, I add the numbers for February and March.**

$$
\begin{array}{r}
28,486 \\
+\ 30,018 \\
\hline
14 \\
90 \\
400 \\
8,000 \\
50,000 \\
\hline
58,504
\end{array}
$$

▷ **For April I want between 999 and 9,999 more visitors than 58,504 visitors.**

I can round 999 to 1,000 and 9,999 to 10,000.

▷ **5,000 is about halfway between 1,000 and 10,000.**

▷ **Last, I add to find the goal.**

Two-month total: $58{,}504$

Number used to set goal: $+\ 5{,}000$

                                              $\overline{63{,}504}$

▷ **My goal for April is 63,504 visitors.**

The number of visitors for both February and March is about 30,000. I want an extra 5,000 visitors.

$30{,}000 + 30{,}000 + 5{,}000 = 65{,}000.$

My goal of 63,504 makes sense.

Hi, I'm Max. Here's how I solved this problem.

I had to choose a number that met the goal.

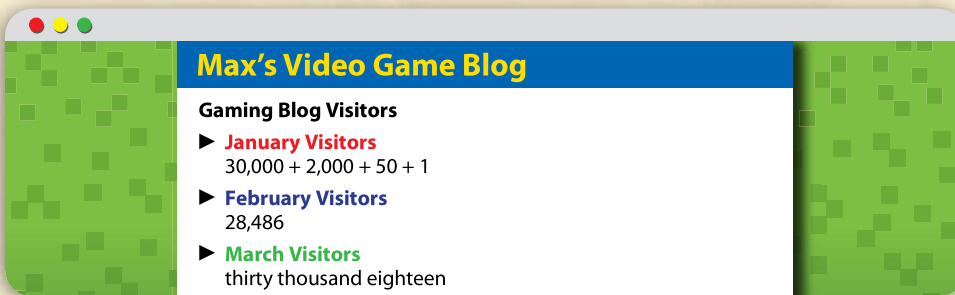*I added 5,000 to the total for February and March.*

I rounded to check that my answer makes sense.

Try **Another Approach**

There are many ways to solve problems. Think about how you might solve the Blog Site Visitors problem in a different way.

Blog Site Visitors

Max posts the number of visitors to his gaming blog.

Max's Video Game Blog

Gaming Blog Visitors
▶ **January Visitors**
30,000 + 2,000 + 50 + 1
▶ **February Visitors**
28,486
▶ **March Visitors**
thirty thousand eighteen

In his April blog, Max will post hints about a popular new computer game. He sets some goals for the number of visitors he hopes to get in April.

• Get more than the total of two of the months combined.

• Get between 999 and 9,999 more visitors than this total.

What is a number of visitors that would meet Max's goal? Tell why your number works.

▶ **Plan It** **Answer these questions to help you start thinking about a plan.**

A. What are all the possible pairs of months? Which pairs are different than the ones used in the example problem?

_____

_____

B. What steps will you take to set a goal for April?

_____

_____

Solve It **Find a different solution for the Blog Site Visitors problem. Show all your work on a separate sheet of paper.**

You may want to use the problem-solving tips to get started.

Problem-Solving Tips

- ### Models

Ten Thousands	Thousands	Hundreds	Tens	Ones

- ### Word Bank

add	thousands	tens
total	hundreds	ones
less than	greater than	

- ### Sentence Starters

  - _____ is greater than _____

  - Write the number _____

Problem-Solving Checklist

Make sure that you . . .

☐ tell what you know.

☐ tell what you need to do.

☐ show all your work

☐ show that the solution works.

Reflect

Use Mathematical Practices As you work through the problem, discuss these questions with a partner.

- **Use Structure** How can your understanding of place value help you find a number that is between two given numbers?

- **Use a Model** How can you use a place-value chart to help you think about the numbers?

Discuss ▶ **Models and Strategies**

Read the problem. Write a solution on a separate sheet of paper. Remember, there are lots of ways to solve a problem!

Max's Summary

Max met his goal for April! He added the information to his blog site.

Max's Video Game Blog

Gaming Blog Visitors
▶ **January Visitors**
   30,000 + 2,000 + 50 + 1
▶ **February Visitors**
   28,486
▶ **March Visitors**
   thirty thousand eighteen
▶ **April Visitors**
   50,000 + 9,000 + 600 + 30 + 2

Max wants you to write a summary about the number of visitors to his blog site from January to April. He wants the summary to tell about how many visitors he had. So, he doesn't want to use exact numbers. Then Max needs help setting a goal for the number of visitors he hopes to get in May.

What should your summary say and what number of visitors should Max set for his May goal?

▶ Plan It and Solve It Find a solution to Max's Summary problem.

Write a detailed plan and support your answer. Be sure to include:

- a sentence about your estimate that Max could put in his summary.
- a goal for the number of visitors he hopes to get in May.
- how you decided on the goal for May.

You may want to use the problem-solving tips to get started.

Problem-Solving Tips

- **Questions**
  - Will I round to the nearest hundred? Nearest thousand?
  - Will I round the numbers first or add first?

- **Word Bank**

round	close to	less than
estimate	greater than	just under
about	a little more than	

- **Sentence Starters**
  - From January to April there were about _____
  - The goal for the number of visitors in May _____

Problem-Solving Checklist

Make sure that you . . .

- ☐ tell what you know.
- ☐ tell what you need to do.
- ☐ show all your work.
- ☐ show that the solution works.

▶ Reflect

Use Mathematical Practices As you work through the problem, discuss these questions with a partner.

- **Be Precise** Why is an estimate appropriate for the situation in the problem?

- **Make Sense of Problems** What is your first step in solving the problem? Why?

Persevere ▶ **On Your Own**

Read the problems. Write a solution on a separate sheet of paper. Remember, there are many different ways to solve a problem!

Yearly Blog Visits

Max's blog site now shows the monthly visitors through June. He asks you to write a report about the number of visitors he had during this time. He also wants you to estimate numbers for the whole year.

Max's Video Game Blog

Gaming Blog Visitors
▶ **January Visitors**
30,000 + 2,000 + 50 + 1
▶ **February Visitors**
28,486
▶ **March Visitors**
thirty thousand eighteen
▶ **April Visitors**
50,000 + 9,000 + 600 + 30 + 2
▶ **May Visitors**
62,187
▶ **June Visitors**
sixty-three thousand nine hundred two

How many visitors should Max expect to get on his blog site in one year?

▶ **Solve It** **Write a report for Max about visitors to his blog site.**

Use rounding and estimation to help you write a report. Include:

• the approximate number of visitors each month and a 6-month total.

• a prediction of the total number of visitors there will be for the whole year.

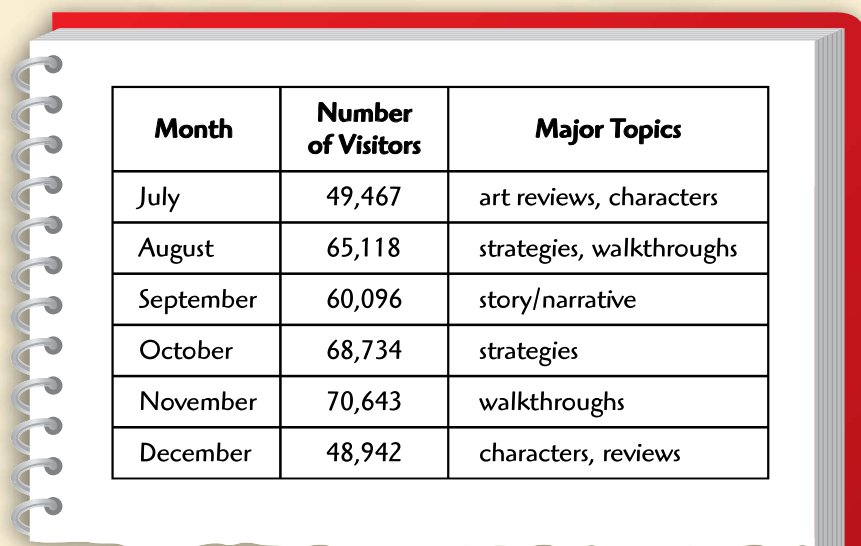• an explanation of how you made the total year prediction.

▶ **Reflect**

Use Mathematical Practices After you complete the task, choose one of these questions to discuss with a partner.

• **Look for Structure** What number patterns helped you make a prediction?

• **Make an Argument** Why is your prediction a reasonable estimate?

Blog Topics

Max recorded the number of visitors to his blog site for the rest of the year. This time he listed the major topics that he reported on each month.

Month	Number of Visitors	Major Topics
July	49,467	art reviews, characters
August	65,118	strategies, walkthroughs
September	60,096	story/narrative
October	68,734	strategies
November	70,643	walkthroughs
December	48,942	characters, reviews

Which of Max's major blog topics are the most and least popular?

▶ **Solve It** Help Max decide which blog topics are the most popular and which topics are the least popular.

Compare the actual numbers of monthly visitors to Max's blog site.

• List the months in order, either from the greatest to least number of visitors or from the least to greatest number of visitors.

• Find the difference between the least and greatest number of visitors.

• Tell which topics seem to be the most popular and which seem to be the least popular. Explain your reasoning.

▶ **Reflect**

Use Mathematical Practices After you complete the task, choose one of these questions to discuss with a partner.

• **Make an Argument** How did you use the monthly numbers to explain which topic is the most popular?

• **Be Precise** Why did you use actual numbers for this problem and not rounded numbers?

Introduction

At A Glance

Students examine a problem about the number of visitors to a web blog, where the math involves comparing and adding multi-digit numbers. They discuss the problem to understand what it is asking and brainstorm different approaches. Then they refer to a problem-solving checklist to analyze a sample solution and identify what makes it a good solution.

Step By Step

- Read the problem aloud with students. Discuss what Max is trying to do.

▶ **Mathematical Discourse 1**

- Have students describe what information is given and what they need to figure out. Take time to discuss the problem and ensure that students understand what it is asking. [The number of visitors in the first 3 months, and some goals for April is given. The part to figure out is a number that would meet his goals.]

▶ **English Language Learners**

▶ **Mathematical Discourse 2**

- Invite students to discuss how they might begin to solve this problem. Allow them to describe different approaches, but don't yet carry through an actual solution.

- Explain that students will look at a sample solution on the next page to see one way the problem could be solved. Then they will read it again and discuss what makes it a good solution by using the **Problem-Solving Checklist**.

Study an Example Problem and Solution

Read this problem about adding whole numbers. Then look at Max's solution to this problem.

Blog Site Visitors

Max posts the number of visitors to his gaming blog.

Max's Video Game Blog

Gaming Blog Visitors
▶ January Visitors
30,000 + 2,000 + 50 + 1
▶ February Visitors
28,966
▶ March Visitors
thirty thousand eighteen

In his April blog, Max will post hints about a popular new computer game. He sets some goals for the number of visitors he hopes to get in April.
- Get more than the total of two of the months combined.
- Get between 999 and 9,999 more visitors than this total.

What is a number of visitors that would meet Max's goal? Tell why your number works.

Read the sample solution on the next page. Then look at the checklist below. Find and mark parts of the solution that match the checklist.

✏ Problem-Solving Checklist

☐ Tell what is known.
☐ Tell what the problem is asking.
☐ Show all your work.
☐ Show that the solution works.

a. **Circle** something that is known.
b. **Underline** something that you need to find.
c. **Draw a box around** what you do to solve the problem.
d. **Put a checkmark** next to the part that shows the solution works.

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▶ Mathematical Discourse

1 *Why do you think Max is setting a goal?*
Students should be able to explain that Max sets a goal so he can attract visitors to his blog. They may also recognize that tracking the monthly numbers helps Max know if he is on track to meet his goal.

2 *What do you notice about the numbers on Max's bulletin board? How do these different forms of numbers give you information about the visitors to his blog?*
Students should notice that each number is in a different form. Standard form gives a quick look at the quantity. Expanded form is helpful for showing the value of each digit in the number. Word form shows how to say the number. Students may point out that it will be easier to compare the numbers if they were all in standard or expanded form.

▶ English Language Learners

- Help students break down the phrase "more than the total of two of the months combined." Elicit that *more than the total* means *greater than the sum*.

- Next, help students analyze the phrase "two of the months combined, Clarify that "combined" means added together.

- Invite students to use their own words to rephrase the first goal in other ways.

Max's Solution

Hi, I'm Max. Here's how I solved this problem.

▷ **I need to find the total visitors for two months combined.**
I know that I can pick any two months. I'll use February and March.

▷ **Next, I write the number for March in standard form.**
thirty thousand eighteen = 30,018

▷ **Then, I add the numbers for February and March.**

```
  28,486
+ 30,018
      14
      90
     400
   8,000
  50,000
  58,504
```

▷ **For April I want between 999 and 9,999 more visitors than 58,504 visitors.**
I can round 999 to 1,000 and 9,999 to 10,000.

I had to choose a number that met the goal.

▷ **5,000 is about halfway between 1,000 and 10,000.**

▷ **Last, I add to find the goal.**

```
Two-month total:          58,504
Number used to set goal: + 5,000
                          63,504
```

I added 5,000 to the total for February and March.

▷ **My goal for April is 63,504 visitors.**

The number of visitors for both February and March is about 30,000. I want an extra 5,000 visitors.

30,000 + 30,000 + 5,000 = 65,000.

My goal of 63,504 makes sense.

I rounded to check that my answer makes sense.

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Step By Step

- Read through Max's solution together, one section at a time. Read for understanding, helping students with any language challenges. Tell students that the speech bubbles show what Max was thinking about as he wrote his solution.

- Discuss Max's solution with students. Help them recognize how the number of visitors was arrived at and how it fits the solution.

▶ **Mathematical Discourse 3–5**

- Then, as a class, go back to do a close read, using the **Problem-Solving Checklist** to help analyze Max's solution.

- Have students look back at the problem to find and circle where Max wrote known, or given, information. Ask: *What other information in this solution was known?* [for example, the number of visitors in March and February, and the goal of between 999 and 9,999 more in April]

- Then have them find and underline where he wrote what he needs to find out. [the total visitors for any two months]

- As a class, find and box where Max showed his work. [adding 28,486 + 30,018, finding a number between 1,000 and 10,000, adding 58,504 + 5,000]

- Finally ask students to put a checkmark next to the place where Max checked his solution. [adding the rounded numbers 30,000 + 30,000 + 5,000 to check that his solution of 63,504 makes sense]

- Tell students that they can use this as a model when they write their own solutions for this problem or other problems.

▶ **Hands-On Activity**

MP TIP Use Structure
As you discuss the sample solution, encourage students to talk about place value where they notice place value in the solution, and how their understanding of place value helps them understand the solution. *(MP 7)*

▶ **Mathematical Discourse**

3 *Why do you think Max wrote the number for March in standard form?*
Students should realize word form is not useful for written calculation. Once the numbers are in standard form, they can be added more easily.

4 *Why do you think Max chose the number 5,000 in his solution?*
Students might respond that the 5,000 is an easy number to work with and it is between 999 and 9,999. Make that students understand that he could have used any number between 999 and 9,999.

5 *How can you tell that the answer works?*
Students should be able to point out the parts of the solution that satisfy the bulleted conditions in the problem.

▶ **Hands-On Activity**

Use a bar graph to estimate a solution.

Materials: grid paper, scissors, tape

- Have pairs of students graph the data for the first two months on a bar graph with a scale of 5,000. Then have them draw a third bar to represent 5,000.

- Have students label and cut out the three bars, draw a new pair of axes, and tape the three bars stacked end-to-end on the new graph.

- Have students use this graph to estimate the number of visitors for April.

Modeled and Guided Instruction

At A Glance

Students plan and solve the Blog Site Visitors problem from the Introduction using a different pair of months. Students demonstrate that the problem has more than one approach and more than one solution.

Step By Step

- Review and summarize the steps in the solution shown in the Introduction. [Write the March total in standard form. Add this to the February total. Choose a value that is between 999 and 9,999 and add it to the sum.]

- Have students brainstorm some different steps than these that they might use to solve the problem. For example, they might use January, or choose a number closer to 999.

Plan It

- Read the questions in **Plan It** aloud. Invite students to share some initial responses. Note useful information on the board for students to refer to as they work on their own.

▶ **Mathematical Discourse**

- Have students work independently to write answers to the **Plan It** questions. Tell them they will use these answers along with the **Problem-Solving Tips** on the next page to make a plan for completing the task.

- Remind students that this problem has many right answers and many ways to find an answer.

- As students work on their plan, circulate to provide support and answer questions. Encourage them to list all the ways to make pairs of months.

▶ **Visual Model**

Try Another Approach

There are many ways to solve problems. Think about how you might solve the Blog Site Visitors problem in a different way.

Blog Site Visitors

Max posts the number of visitors to his gaming blog.

Max's Video Game Blog
Gaming Blog Visitors:
▶ January Visitors
30,000 + 2,000 + 50 + 1
▶ February Visitors
28,186
▶ March Visitors
thirty thousand eighteen

In his April blog, Max will post hints about a popular new computer game. He sets some goals for the number of visitors he hopes to get in April.
- Get more than the total of two of the months combined.
- Get between 999 and 9,999 more visitors than this total.

What is a number of visitors that would meet Max's goal? Tell why your number works.

▶ **Plan It** Answer these questions to help you start thinking about a plan.

A. What are all the possible pairs of months? Which pairs are different than the ones used in the example problem?

_____

_____

B. What steps will you take to set a goal for April?

_____

_____

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▶ **Mathematical Discourse**

Do you think that Max should set a lower goal or a higher goal? Why? And how would you do this?

Students should be able to explain pros and cons of setting low and high goals. They should be able to recognize that choosing months with fewer visitors is one way of keeping the goal lower, and choosing a lesser number to add to the sum of the months is another way. On the other hand, choosing months with more visitors and choosing a greater number to add are ways to set a higher goal.

▶ **Visual Model**

Use a place-value chart to add numbers.

Materials: place-value chart

Have students work in pairs to write the total visitors for January and February in the place-value chart. Have them read the value of each digit. [e.g., 2 ten thousands, 8 thousands, 4 hundreds, 8 tens, 6 ones] Have students add each place value and then write the total in expanded form.

▶ **Solve It** Find a different solution for the Blog Site Visitors problem. Show all your work on a separate sheet of paper.

You may want to use the problem-solving tips to get started.

Problem-Solving Tips

• **Models**

Ten Thousands	Thousands	Hundreds	Tens	Ones

Problem-Solving Checklist

Make sure that you . . .

☐ tell what you know.

☐ tell what you need to do.

☐ show all your work

☐ show that the solution works.

• **Word Bank**

add	thousands	tens
total	hundreds	ones
less than	greater than	

• **Sentence Starters**

• _____ is greater than _____

• Write the number _____

▶ **Reflect**

Use Mathematical Practices As you work through the problem, discuss these questions with a partner.

• **Use Structure** How can your understanding of place value help you find a number that is between two given numbers?

• **Use a Model** How can you use a place-value chart to help you think about the numbers?

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Scoring Rubric

Points	Expectations
4	The solution steps, calculations, and explanation are complete and correct, with no errors. The student shows his/her work, telling which months were used and explaining how the solution meets the requirements.
3	The solution steps, calculations, and explanation are complete and mostly correct, with limited and minor errors. The explanation may be missing minor details such as how the solution meets the requirements.
2	The solution steps, calculations, and/or explanation are incomplete and include several errors. The solution does not fully meet the requirements and contains a significant calculation error.
1	The solution steps, calculations, and explanation are incomplete and include several errors. There are significant calculation errors. The final solution does not meet the requirements, or there is no solution.

Step By Step

Solve It

• Introduce the **Problem-Solving Tips** as ideas students may use to explain their thinking when they write their solution. Briefly go over the model, the word bank, and the sentence starters.

• Tell students they are welcome to look back at Max's solution to get ideas for how to write a complete answer. Remind them to also use the **Problem-Solving Checklist** as they work to help organize their thinking.

• Have students write their own complete solutions on Activity Sheet 2 (Solution Sheet 2) or on a separate sheet of paper. As they work, have students share their thinking with a partner and discuss the **Reflect** questions about Mathematical Practices.

• If time permits, some students can explain their solutions to the class. Or you might share the solution below and invite the class to discuss it.

Possible Solution

I want to set a high goal, so I will use January and March. I will write the totals for these months in a place-value chart.

Ten Thousands	Thousands	Hundreds	Tens	Ones
3	2	0	5	1
3	0	0	1	8

Then I add them. $32,051 + 30,018 = 62,069$

I want a high goal, so I choose 9,500.
$9,500 > 999$ and $9,500 < 9,999$.
$62,069 + 9,500 = 71,569$.
I would set Max's goal for April as 71,569 visitors.

👥 Guided Practice

At A Glance

With **Problem-Solving Tips** as support, students understand, plan, and solve an open-ended, multi-step problem. They choose appropriate models and strategies to solve the problem, checking their thinking with a partner.

Step By Step

- Have students read the problem on their own and think about questions they can ask to understand it better. Then read the problem aloud, stopping frequently for students to ask clarifying questions.
- Ensure that students have identified Max's three objectives: summarize the total number of visitors, use an estimate rather than an exact number, and set a goal for visitors in May.

▶ **Mathematical Discourse 1**

> **MP TIP Reason Abstractly and Quantitatively**
> Review with students what a summary is and discuss how their summary will present mathematical information. Help students understand how they can use numbers to present real-world information. *(MP 2)*

- Invite volunteers to point out what is known [the number of visitors for four months] and what they need to figure out [a total and a goal for May].
- Have students examine the monthly totals. Prompt a discussion of the estimation process and how to apply it to these numbers.

▶ **Mathematical Discourse 2**

- Point out the three steps needed for the solution. Discuss ideas for estimating the goal for May.

▶ **Mathematical Discourse 3**

- Ask students to make a plan for solving the problem, using the problem-solving tips on the next page if they want.

Discuss ▶ Models and Strategies

Read the problem. Write a solution on a separate sheet of paper. Remember, there are lots of ways to solve a problem!

Max's Summary

Max met his goal for April! He added the information to his blog site.

Max's Video Game Blog

Gaming Blog Visitors
▶ January Visitors
30,000 + 2,000 + 10 + 1
▶ February Visitors
28,148
▶ March Visitors
thirty thousand eighteen
▶ April Visitors
30,000 + 9,000 + 600 + 30 + 2

Max wants you to write a summary about the number of visitors to his blog site from January to April. He wants the summary to tell about how many visitors he had. So, he doesn't want to use exact numbers. Then Max needs help setting a goal for the number of visitors he hopes to get in May.

What should your summary say and what number of visitors should Max set for his May goal?

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▶ Mathematical Discourse

1 *What do you need to do with the visitor data?*

Students should see that they need to add the monthly data to get the total for four months.

2 *How will you estimate the total number of visitors?*

Students should consider the estimation process and whether to estimate before or after adding.

3 *What are some ways to think about the goal for May?*

Students may consider whether the goal should be higher or lower than previous months and what are reasonable processes for setting the goal.

▶ **Plan It and Solve It** Find a solution to Max's Summary problem.

Write a detailed plan and support your answer. Be sure to include:
- a sentence about your estimate that Max could put in his summary.
- a goal for the number of visitors he hopes to get in May.
- how you decided on the goal for May.

You may want to use the problem-solving tips to get started.

Problem-Solving Tips

● **Questions**
- Will I round to the nearest hundred? Nearest thousand?
- Will I round the numbers first or add first?

Problem-Solving Checklist

Make sure that you . . .
- ☐ tell what you know.
- ☐ tell what you need to do.
- ☐ show all your work.
- ☐ show that the solution works.

● **Word Bank**

round	close to	less than
estimate	greater than	just under
about	a little more than	

● **Sentence Starters**
- From January to April there were about _____
- The goal for the number of visitors in May _____

▶ **Reflect**

Use Mathematical Practices As you work through the problem, discuss these questions with a partner.

- **Be Precise** Why is an estimate appropriate for the situation in the problem?
- **Make Sense of Problems** What is your first step in solving the problem? Why?

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Scoring Rubric

Points	Expectations
4	Calculations and estimates are accurate and are clearly explained. The summary sentence is clear and precise. The rationale for May's goal is explained in mathematical terms and the goal meets requirements.
3	Calculations may have small errors. The summary sentence provides a valid estimate but may not be explained. The goal fits the requirements but the rationale is not fully explained.
2	The solution steps and explanation are not clear or do not fully address the problem situation. At least one estimate is incorrect and the total shown in the summary statement is likewise incorrect. A goal for May is given but not explained, and may be incorrect.
1	The steps are incomplete and estimates are not valid. Calculations may be incorrect. There may be no goal set for May, or it does not meet the requirements and is not explained.

Step By Step

Plan It and Solve It

- Encourage students to use various resources, including the **Problem-Solving Tips** and the **Problem-Solving Checklist**, as they begin to plan a solution. It can also be helpful to look back at Max's sample solution as an example of how to write a thorough answer.

- Put students in pairs to discuss solution ideas. Ask them to also discuss the **Reflect** questions about Mathematical Practices. Remind students that there are always different ways to answer these questions.

- Discuss a variety of approaches as a class. Let students revise their plans and discuss again with a partner. Provide support for any issues students have discussed but can't resolve.

- When students are confident that their plans make sense, tell them to write a complete solution on Activity Sheet 1 (Solution Sheet 1) or on a blank sheet of paper.

- If time permits, selected students can explain their solutions to the class. Alternatively, you can share the solution below and invite the class to discuss.

Possible Solution

First, I will write the totals in standard form. I will estimate the total visitors by rounding each number to the nearest thousand.

Then I will add. For January, 32,051 rounds to 32,000. For February, 28,486 rounds to 28,000. For March, 30,018 rounds to 30,000. For April, 59,632 rounds to 60,000.

$32,000 + 28,000 + 30,000 + 60,000 = 150,000$. Max got about 150,000 visitors from January to April.

I want the goal for May to be between the least and greatest number of visitors in a month. The least was 28,486 visitors in February. The greatest was 59,632 visitors in April. 20,000 more than 28,486 is 48,486. $48,486 > 28,486$ and $48,486 < 59,632$. So, the goal for May can be 48,486.

👤 Independent Practice

At A Glance

Students find and share solutions to two multi-step, open-ended problems.

Step By Step

Solve It

- Have students start by working independently to understand the first problem and create a plan to solve it. Encourage them to note any questions or difficulties they encounter.

- Then put students in pairs to discuss their preliminary solutions. When they are confident that their plan will work, have students independently write their solutions on Activity Sheet 1 (Solution Sheet 1) or on a blank sheet of paper.

- After students complete their solutions, put them in pairs to discuss the **Reflect** question about Mathematical Practices.

- If time permits, invite various students to explain their solutions to the class to discuss, compare, and critique. Alternatively, share the solution below and invite the class to discuss.

Possible Solution

First, I will write the totals in standard form. I will estimate the monthly visitors by rounding each number to the nearest thousand. I made a table.

Month	Jan.	Feb.	March	April	May	June
Total	32,051	28,486	30,018	59,632	62,187	63,902
Rounded	32,000	28,000	30,000	60,000	62,000	64,000

I added the rounded totals. $32,000 + 28,000 + 30,000 + 60,000 + 62,000 + 64,000 = 276,000$.

I predict that the total number of visitors for the whole year will be approximately twice the total number of visitors in the first half of the year. $276,000 + 276,000 = 552,000$. I think Max should expect to get about 552,000 visitors in one year.

Persevere ▶ **On Your Own**

Read the problems. Write a solution on a separate sheet of paper. Remember, there are many different ways to solve a problem!

Yearly Blog Visits

Max's blog site now shows the monthly visitors through June. He asks you to write a report about the number of visitors he had during this time. He also wants you to estimate numbers for the whole year.

Max's Video Game Blog

Gaming Blog Visitors
- **January Visitors**
  30,000 + 2,000 + 50 + 1
- **February Visitors**
  28,486
- **March Visitors**
  thirty thousand eighteen
- **April Visitors**
  50,000 + 9,000 + 600 + 30 + 2
- **May Visitors**
  62,187
- **June Visitors**
  sixty-three thousand nine hundred two

How many visitors should Max expect to get on his blog site in one year?

▶ **Solve It** Write a report for Max about visitors to his blog site.

Use rounding and estimation to help you write a report. Include:
- the approximate number of visitors each month and a 6-month total.
- a prediction of the total number of visitors there will be for the whole year.
- an explanation of how you made the total year prediction.

▶ **Reflect**

Use Mathematical Practices After you complete the task, choose one of these questions to discuss with a partner.

- **Look for Structure** What number patterns helped you make a prediction?

- **Make an Argument** Why is your prediction a reasonable estimate?

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Scoring Rubric

Points	Expectations
4	Steps are well organized, clear, and complete. Calculations and estimates are correct. Information in the report is clear and accurate. The prediction and explanation are valid.
3	Steps are well organized and complete but may be somewhat unclear. Calculations and estimates may contain a minor error. The prediction is valid but the explanation may be incomplete or imprecise.
2	Steps are not well organized and are incomplete. Calculations and estimates contain at least one error, and the prediction may not be valid or may lack an explanation.
1	Steps are incomplete, and many calculations and estimates are incorrect. The prediction is not calculated correctly and is not explained.

Blog Topics

Max recorded the number of visitors to his blog site for the rest of the year. This time he listed the major topics that he reported on each month.

Month	Number of Visitors	Major Topics
July	49,467	art reviews, characters
August	65,118	strategies, walkthroughs
September	60,096	story/narrative
October	68,734	strategies
November	70,643	walkthroughs
December	48,942	characters, reviews

Which of Max's major blog topics are the most and least popular?

▶ **Solve It** Help Max decide which blog topics are the most popular and which topics are the least popular.

Compare the actual numbers of monthly visitors to Max's blog site.
- List the months in order, either from the greatest to least number of visitors or from the least to greatest number of visitors.
- Find the difference between the least and greatest number of visitors.
- Tell which topics seem to be the most popular and which seem to be the least popular. Explain your reasoning.

▶ **Reflect**

Use Mathematical Practices After you complete the task, choose one of these questions to discuss with a partner.

- **Make an Argument** How did you use the monthly numbers to explain which topic is the most popular?
- **Be Precise** Why did you use actual numbers for this problem and not rounded numbers?

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Scoring Rubric

Points	Expectations
4	The solution steps are well explained and ordered logically. The difference is correct and work is shown. The explanation of most and least popular topics is explained with mathematical reasoning.
3	The solution steps are substantially complete. One month may be out of order. The difference is correct and work is shown. The explanation of most and least popular topics may lack detail, or may not be clearly explained mathematically.
2	The solution steps are incomplete. Most months are correctly ordered. The difference is correct but the work is not shown. The explanation of most and least popular topics is subjective and not explained mathematically.
1	The solution is incorrect. The months are not correctly ordered and the difference may be incorrect. The selection of most and least popular topics is arbitrary and not explained mathematically.

Step By Step

Solve It

- Have students work through this problem entirely on their own using Activity Sheet 2 (Solution Sheet 2) or a blank sheet of paper.
- Remind students that there are many different ways to solve a problem.
- Invite them to look back at the **Problem-Solving Checklist** to get started and help them stay on track. They might also want to look at the **Problem-Solving Tips** and sample solutions on other pages to get some ideas for how to start.
- After students complete their solutions, put them in pairs to discuss the **Reflect** question about Mathematical Practices. Students may also describe other Math Practices they used.
- If time permits, invite various students to explain their solutions to the class to discuss, compare, and critique. Alternatively, share the solution below and invite the class to discuss.

Possible Solution

I need to compare all the months so I can list them in order from least to most visitors. All the numbers are in the ten thousands, so I can look at just the first two digits. July and December are both less than 50,000. 48 < 49, so December is the least, then July. I can order 60, 65, and 68 to order September, August, October. November is the only one with more than 70,000, so that's the most.

Month	Dec.	Jul.	Sep.	Aug.	Oct.	Nov.
Number of Visitors	48,942	49,467	60,096	65,118	68,734	70,643

To find the difference I will subtract the December total (least) from the November total (most). The difference is $70,643 - 48,942 = 21,701$.

The most popular topics seem to be *strategies* and *walkthroughs*, because the three highest total months have *strategies* or *walkthroughs* or both. The least popular topics seem to be *reviews* and *characters*, because these are in the two lowest total months.

Fourth Grade
Social Studies
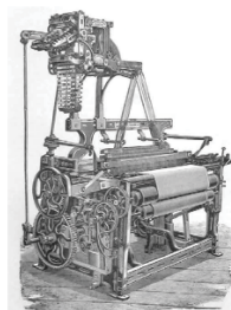
UNIT 4
The Growth of the Republic
1800s-1850

CHAPTER 13
AMERICAN INDUSTRIAL REVOLUTION

Correlates with 4.19, 4.20, 4.21
Develops SSP.02, .03, .04, .05, .06
Complies with T.C.A. 49-6-1006

What Was the Industrial Revolution?

Humans have made and used tools since prehistoric times. The first tools were as basic as stone axes and wooden spears. Over time people developed new tools and better tools.

> The **Industrial Revolution** is the historic period when hand tools were replaced by powered machinery and large-scale industrial production.

The Industrial Revolution began in England in the 1700s. It spread throughout Europe and then to the United States. Technology really began changing in America in the late 1700s and early 1800s. Changes started locally, but their impact spread. So many scientific and technological advances were made during the Industrial Revolution, that life, and America, underwent rapid and significant changes during this time.

The Industrial Revolution was all about technological advancements!

By the late 1700s and early 1800s, technological advancements helped encourage the growth and development of the United States by increasing the productivity of farmers and businesses and improving transportation and communication. These advancements greatly increased the quality of life for Americans.

Reading for Information ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Fill in the blanks.

_____ were replaced by large-scale _____ during the Industrial Revolution, which began in _____. Life in America underwent _____ changes as advancements in technology spread throughout the nation.

Word Bank

industrial production

rapid and significant

hand tools

Europe

FACTORY SYSTEM

From Self-Reliance to Specialization

In the 1700s, most people were self-reliant for meeting most of their own needs. People usually grew their own food and made their own clothes, tools, and furniture at home. They also bought goods from small local businesses and artisan workshops.

In some areas, "cottage industries" grew as a way to produce goods. Workers bought raw materials from merchants, took the materials back to their homes, produced the goods needed by the merchant, and then sold them back to the merchant. However, the process was inefficient, and goods produced through cottage industries were usually too expensive for anyone but the rich to afford.

The First Textile Mill

Slater's Mill in Pawtucket
Rhode Island
Courtesy of Dietmar Rabich via Wikimedia Commons

In Europe, an invention known as "Crompton's mule" rapidly changed the textile industry in the late 1700s. This new machine could spin large quantities of fine, strong yarn. This technology helped decrease costs and increase production.

Samuel Slater was born in England. He worked as an apprentice in the textile industry. In 1789, Slater immigrated to the United States where his textile skills were in high demand. However, most textiles in the U.S. were produced in cottage industries. Slater decided to use his knowledge to bring the factory system to textile production in America.

Samuel Slater built America's first successful textile mill in Rhode Island in 1793! As textile production increased in the North, so did the demand for cotton from the South. This is an example of how the economies of the North and South were connected.

How was Samuel Slater successful?

- He used technology, such as Crompton's mule, to automate manufacturing and increase production.

- He used division of labor to organize work into a series of steps that workers could become specialized in doing.

- He built his mill near a river and used a watermill—also called a water wheel— to power the factory machines.

Watermills influenced where factories were built

Slater also started a new concept in work life by hiring entire families, including children. The families lived in company-owned housing near the mills, shopped at the company stores, and attended company schools and churches. One of his earliest mill villages was named Slaterville.

Samuel Slater is known as the "Father of the American Industrial Revolution" and the "Father of the American Factory System."

COTTON GIN

Most industrialization in America at this time occurred in the North. As a result, many people began to migrate to the North, which caused many cities to become urbanized. However, things were much different in the South.

In Tennessee, there were many different types of farms among the three grand divisions, and some of the farmers grew cotton. When the cotton plants were ready to harvest, workers went into the fields and picked the cotton off the plants. The cotton fiber had lots of seeds tangled inside of it, which had to be removed by hand. This cleaning process took a long time and made producing fabric from cotton very inefficient. However, everything changed in 1793 when Eli Whitney invented the cotton gin.

The cotton gin was a simple machine that separated seeds from the cotton fiber. A cotton gin was inexpensive to make, and it made cotton production much more profitable. This brought about the expansion of the plantation system in the South, and the amount of cotton grown in Tennessee and across the South dramatically increased.

Economic Impact

With a cotton gin, making goods from cotton became more efficient than when the seeds had to be separated by hand. Since it was now easier to get the seeds out so the cotton could be used, a lot more cotton was planted in the South. Cotton was shipped to Europe, France, and other European countries. Soon, cotton became the United States' number one export!

Political Issues Rise

Southern farms needed workers to cultivate and pick cotton. The increased need for workers in the South led to an increase in the African slave trade. Africans were brought to America in higher numbers to meet the demand of southern plantations. While some of the first Africans may have been paid for their labor, that did not last. The increased enslavement of Africans and the South's increased dependence on the institution of slavery were consequences of the invention of the cotton gin.

Fascinating Fact

Why did Eli Whitney call his invention the cotton gin? Gin was short for engine!

THE STEAMBOAT

Before the Industrial Revolution

Slow As a Snail!

Before the Industrial Revolution, transportation was slow and difficult. Early roads were dirt paths—barely wide enough for a wagon. Roads were often very dangerous when it rained or when they were covered in ice. Ships traveling by river were the fastest way to move from one place to another. However, ships relied on wind power or men with oars to move upstream. As a result, many shipments were delayed when the weather would not cooperate.

Full Steam Ahead

Things changed in the early 1800s with the invention of steam power transportation. Steamboats and steam locomotives were quick and reliable. These powerful new machines moved raw materials, goods, and people across the nation.

John Fitch first invented the steamboat in 1791, but his boats were very slow and needed to be redesigned. By 1807, entrepreneur Robert Fulton improved the steamboat by making it faster and more efficient. His steamboat, the *Clermont*, made history when it traveled 130 miles from New York City to Albany in just 32 hours—quite a feat for its time, considering it was traveling upstream.

As word spread, Fulton was in high demand. By 1814, his steamboat business was running on rivers and lakes near six large cities.

A Z Vocabulary

entrepreneur: *a person who organizes resources to bring a new or better good or service to market in hopes of earning a profit*

Fulton's steamboat
the Clermont

Impact on Transportation

Steamboats allowed people to travel much farther and much faster than in the past. Many pioneers traveled by steamboat to get from the East to Missouri, where they would start their journey by wagon to the West.

Impact on Economy

Steamboats encouraged the development of cities along rivers and the Great Lakes. Steamboats were used to transport livestock and crops from the Midwest to the East.

Problem Solution

WINDMILLS & MORE

The Great Plains

As people began to migrate and develop the West, they quickly realized the geography was much different in these new regions of the United States. Unlike the fertile regions of the East, the Great Plains were often thought of as a "treeless wasteland." The land was tough due to wind and water erosion, and dust storms often occurred. Rainfall was infrequent, and other water sources were scarce. However, new technological advances during the Industrial Revolution allowed people to adapt to this challenging environment. As a result of these new technologies, people began to see the Great Plains, and the West, as an area to settle.

Inventions

==Windmills== allowed farmers to draw up spring water from deep underground. Farmers could use that water for their families and to grow crops. The use of underground water, as well as improved irrigation, was essential for successful farming in the Great Plains!
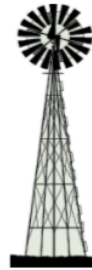
The ==steel plow== and ==mechanical reaper== were also a huge help for farmers on the Great Plains. Unlike wood plows, the steel plow was strong enough to cut through the thick, tangled roots of the tough prairie soil. The mechanical reaper cut wheat ten times faster than it could be cut by hand.

Adaptations

Many farmers adapted to the geography of the Great Plains by growing ==wheat==. Wheat is a hardy crop that grows well in the dry conditions of the Great Plains. Wheat became an important agricultural crop for feeding the growing population of the United States.

Many farmers adapted by raising ==beef cattle== on large areas of open grassland that were unsuitable for growing crops. Thousands of cattle were herded from area to area during the "open range" period on the Great Plains. Cowboys led cattle drives to move the animals to where they could be shipped east on railroads or steamboats.

Impact of Technology in the Developing West

These inventions and adaptations helped settlers to develop the West into the "breadbasket" of the nation, and later the world!

Regional Differences Develop

Industrialization had an impact on all areas of the United States. However, the ways industrialization impacted each region was not the same. Regional differences developed between the three main areas of the United States in the early 19th century.

In the South...

Agriculture was the main contributor to the South's economy. In fact, cotton was the country's number one export!

Technological advances led to a growth in the size of plantations in the South. Many smaller Southern farmers sold their land to plantation owners and crossed the Appalachian Mountains in search of new opportunities, too.

The plantation system expanded and was at the center of Southern society. Most of the South was **rural**, or country. Large plantations in the South relied on enslaved Africans for labor.

Cotton farming in the South

In the North...

The North's economy grew due to increases in industry, rather than agriculture. Many factories were built in cities. People moved to Northern cities because that's where the job opportunities were. As a result, **urbanization** increased.

Most new U.S. immigrants arrived in the North, and many settled here. This added to the population of the region—and to its diversity!

Vocabulary

urbanization: when a population shift occurs; when people leave small, rural towns for larger, more developed cities

In the West...

As the North became more crowded, many settlers packed up and moved west in search of new opportunities. Industries in the West developed along major rivers and the Great Lakes. Cities grew as people settled near factory jobs. Manufactured goods and natural resources from the West were shipped east to support the growing population of the North. Transportation routes increased as many people worked in jobs clearing land, draining swamps, and building railroads.

Great Lakes
Inland port cities grew here as a result of their connection to the Atlantic Ocean

Slave Life in America

Even though great technological improvements occurred during the Industrial Revolution in America, life remained very difficult for slaves in the agricultural South.

Slave labor on a cotton plantation

Slaves in the South typically lived on small farms, plantations, or in cities or towns. Not all white Southerners owned slaves. In fact, by 1860, only 25 percent of white Southern families owned slaves. Many of these families operated small farms with just a few slaves. Slaves on smaller farms often had better relationships with their owners and better living conditions than slaves living on large plantations.

Southern plantations had slave populations ranging from about twenty slaves to several hundred. Plantation slaves worked in the fields, in jobs such as blacksmiths or carpenters, or as house servants. Plantation slaves often endured harsh weather conditions and long hours. Many suffered cruel treatment by masters and overseers.

Sometimes, slaves were "hired out" by their owners to work in cities or towns, where they worked in factories, mills, shipyards, or warehouses. Here, some slaves learned skills, such as carpentry or blacksmithing, and were sometimes able to keep part of their wages. Overall, these city slaves had better lives and more freedom than those working on farms or plantations.
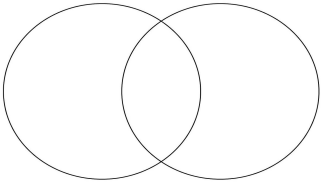
American Industrial Revolution Tic-Tac-Toe
Grade 4 Task, Week 1

Directions: Use your knowledge of the American Industrial Revolution to create a tic-tac-toe from the board below. Your line may be horizontal, vertical, or diagonal and must include 3 boxes. The links provided and the text from Chapter 13 will help you. Make sure to show off your hard work to someone when you finish!

Answer the following: Why is Samuel Slater considered the Father of the Industrial Revolution?	Compare/contrast life in the North and South during the Industrial Revolution.	Create a new invention that solves a current problem and explain the impact it will have on society.
Write a poem or song about the Industrial Revolution.	Rank the following inventions from 1-4. 1 is most impactful to 4/least impactful. Justify each ranking in writing. Steamboat, cotton gin, watermills, factory system	Answer the following: How did the Industrial Revolution impact the West?
Answer the following: Why did the North and South start to change during the Industrial Revolution?	Create a comic strip showing how the Industrial Revolution changed life in America.	Compare/contrast the lives of the enslaved between those that lived and worked on plantations, in cities, and small farms.

Additional Optional Resources to Use with Digital Access:

https://www.gallopadecurriculum.com/login - Chapter 13

www.brainpop.com - Search for the Industrial Revolution (*Free access is available online.)

https://kids.kiddle.co/Industrial_Revolution

https://www.youtube.com/watch?v=nl_-6WPQ4Sg

Fourth Grade
ELA

4.ELA.Week 1

There will be a short video lesson of a Knox County 4ᵗʰ Grade Teacher to accompany this text available on the KCS YouTube Channel and KCS TV.

Tennessee's English Language Arts (ELA) standards ask students to read, talk, and write about a variety of texts. In this activity packet, your child will have the chance to do just that as they work to solve a mystery.

First, your child will encounter a letter introducing them to the idea of becoming a "Super Sleuthhound." You can discuss the picture clues – camera, keys, flashlight, compass. Think about how these things might be tools for a detective or sleuth.

In this week's text, your child will be looking for specific clues about:

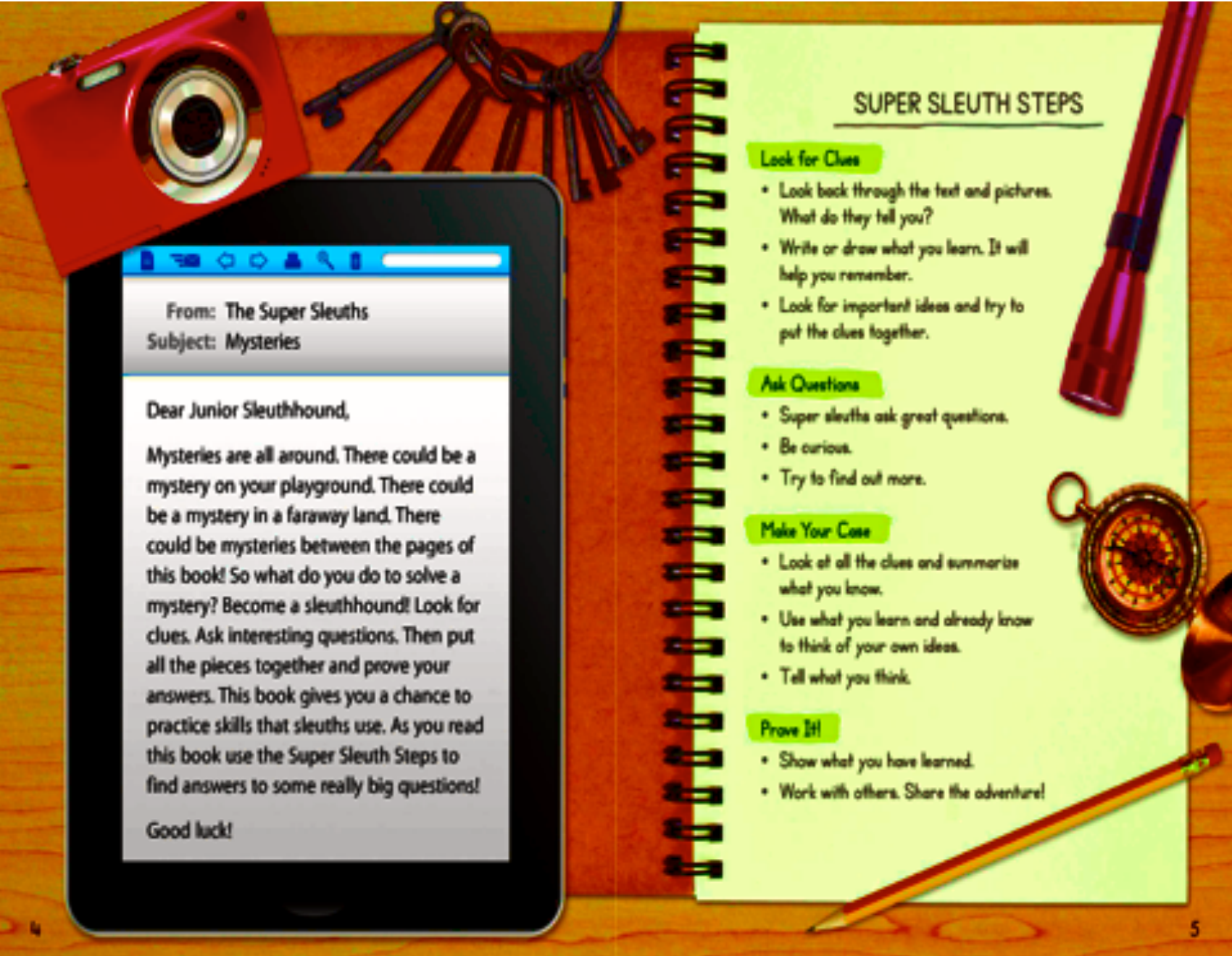**TOPIC:** Mysteries and Puzzles

ESSENTIAL QUESTION: Why can't you always believe what you think you see?

Before reading, ask your child if there is an explanation for everything that happens? What about magic tricks or optical illusions? Tell them as they read, they'll be looking for clues to explain why you can't always believe what you think you see.

You may choose to take turns reading the text with your child, read the text at the same time, or have your child read independently.

At the end of the text, there is a "Be a Sleuth" section containing questions to discuss and write about the text.

- Look for Clues – You may ask your child to underline evidence for this question or you can discuss three details about optical illusions in nature. Be sure that students refer back to the details in the text. Also, refer back to the essential question – Why can't you always believe what you think you see?

- Ask Questions – This question is always a good question to discuss. As your child generates a question, you may choose to add a question you have as well. If your child struggles to ask a question, you may make a question as a model and then create one together. They can also research to find the answers to their questions.

- Make Your Case – This question is a written task. Your child should be able to write a paragraph that states their opinion, supplies reasons or evidence to support their opinion, and ends with a conclusion or closing statement. They can also create an illustration of their writing.

From: The Super Sleuths
Subject: Mysteries

Dear Junior Sleuthhound,

Mysteries are all around. There could be a mystery on your playground. There could be a mystery in a faraway land. There could be mysteries between the pages of this book! So what do you do to solve a mystery? Become a sleuthhound! Look for clues. Ask interesting questions. Then put all the pieces together and prove your answers. This book gives you a chance to practice skills that sleuths use. As you read this book use the Super Sleuth Steps to find answers to some really big questions!

Good luck!

SUPER SLEUTH STEPS

Look for Clues

- Look back through the text and pictures. What do they tell you?
- Write or draw what you learn. It will help you remember.
- Look for important ideas and try to put the clues together.

Ask Questions

- Super sleuths ask great questions.
- Be curious.
- Try to find out more.

Make Your Case

- Look at all the clues and summarize what you know.
- Use what you learn and already know to think of your own ideas.
- Tell what you think.

Prove It!

- Show what you have learned.
- Work with others. Share the adventure!

Unit 4
Puzzles and Mysteries

Hi, Sleuthhounds!

In this unit, you will be looking for clues about some cool mysteries. Here are some sleuth tips to help you. Enjoy the adventure!

Sleuth Tips

Gather Evidence

How do sleuths remember clues?

- Sleuths know that everyone forgets. They take notes and write down the details.
- Sleuths use many ways to help remember what is important. They make lists, draw diagrams, and create charts.

Ask Questions

Why do sleuths ask questions?

- Sleuths need to ask questions to gather facts and evidence. These questions can help find answers.
- Sleuths know that good questions can lead to interesting answers.

Make Your Case

How do sleuths disagree with other sleuths?

- Sleuths don't expect everyone to agree. They are curious about other ideas.
- Sleuths ask questions to help them understand how others may have come to a different conclusion.

Prove It!

What do sleuths think about before showing what they have learned?

- Sleuths look back at their notes. They focus on what is most important to share.
- Sleuths try to find the most clear and convincing way to show what they know. They often make an outline.

Don't Believe What You See

Have you ever felt like your eyes were playing tricks on you? You might have been experiencing an optical illusion. Optical illusions trick us into thinking that we are seeing something different than what is actually there for us to see. Optical illusions occur because our brain perceives an image in a particular way.

Optical illusions are all around us. They occur in the natural world. A familiar illusion on a hot summer day is called a mirage. When driving along a hot road, sometimes our eyes seem to think that there is water on the road in front of us. As we approach that spot, we realize it was just an illusion. This happens because the heat from the road is rising and light from the sun hits it in a way that makes our eyes think there's water ahead.

Some animals and insects use illusions. Lions blend into the long brown grasses around them. This keeps them hidden from their soon-to-be meals. Insects such as the walking stick use an illusion to keep from being eaten. The walking stick looks like its name suggests—a stick!
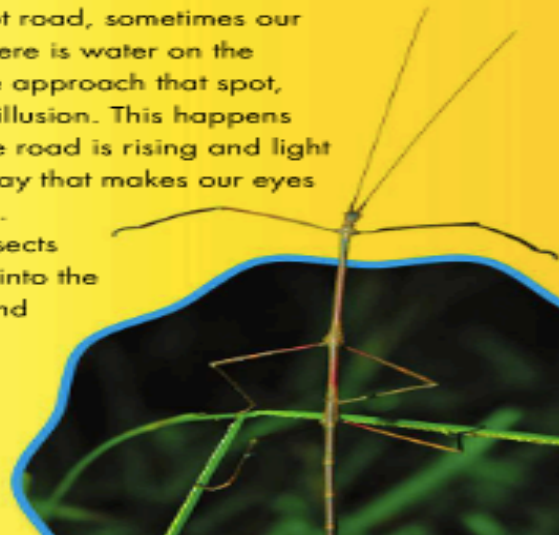
Besides natural illusions, there are many human-made illusions too. Sometimes people call these brainteasers. Pictures are created to show different things at different times. Sometimes people don't see the same things in the same picture. One example of this is a picture that shows the word *ME*. When that same picture is looked at a bit differently, you may see the word YOU in it too.

Optical illusions are not only fun to look for but they have uses in nature. Keep your eyes open, but remember that you can't always believe what you see!

Sleuth Work

Gather Evidence Write three details that tell about optical illusions in nature.

Ask Questions Write two questions that you have about optical illusions for which you could research answers.

Make Your Case There is an expression that says, "seeing is believing." Do you think it is true more often than it is not true? Write a paragraph that states your opinion.

45

Fourth Grade
Science

3rd-5th grade Science: Week 1 April 6th Engineering Design Challenge

Part 1: Students read alone or with a parent and then follow directions.

Food packages are designed by engineers or package scientists. Some packages are designed to be heat resistant because they are used in a microwave. Other food packages ship from long distances in a truck and are stacked in boxes inside a truck. As many food packages as possible are made to fit in the truck. Many food packages have a purpose to their design. Think about potato chips and how they are packaged. Some are in small bags or large bags. Some chips are in a cylinder package. All of this packaging is designed to keep the food clean, protect it from physical or chemical change, and to provide sales appeal.

Directions: Observe a potato chip container or think about a time you opened a bag of potato chips. Draw and label important design features (parts) to the container. What do you notice?
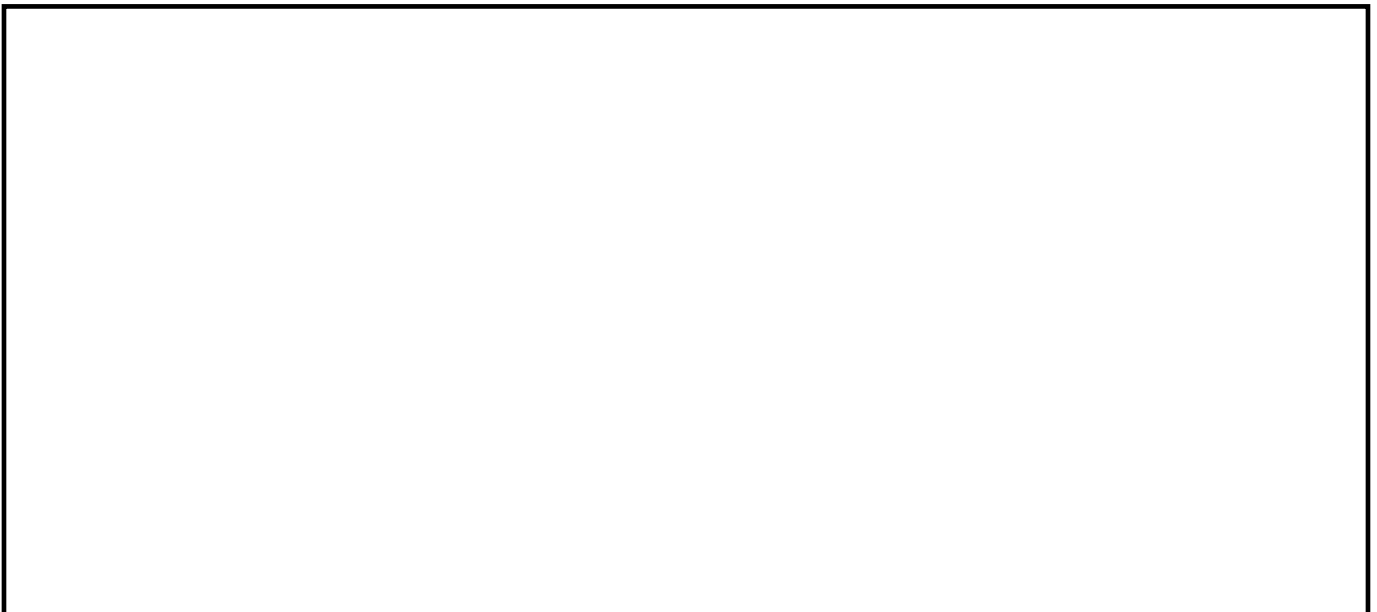
Part 2: The Design Challenge

How can we package a single potato chip so that it won't be damaged?

Criteria and Constraints for Design:

- Students must take one large potato chip and create a package using at least three materials that will protect the chip.
- Nothing can be applied to the potato chip. The chip cannot be altered in any way.
- No premade container can be used.
- The package must be created by the student or with family help.
- The package needs to be approximately 5 inches by 3 inches.
- The package must use 3 or more materials.
- Materials can be found anywhere in the house to use. Some examples are: sandwich bag, paper, straws, cotton balls, tape, fabric, plastic wrap, bottle cap.
- The package will be put through **three** tests. .
  - Toss Test: Chip must be tossed approximately 6 feet without breaking.
  - Packing Test: Book must be laid on top of package and the chip not break.
  - Water Test: 5 drops of water must be put on package without getting the chip wet.

Step 1: Plan your design. Think about the materials you can use. Draw or write about what your package is going to look like.

2

Step 2: Create your design.

Step 3: Test your design. Fill out the chart below.

Did the chip get damaged?		
Toss Test: Toss package 6 feet.	Yes	No
Packing Test: Place 3 books on top of package.	Yes	No
Water Test: Drop 5 drops of water on package.	Yes	No

Step 4: Improve design.

Write about how your design did in the tests. What can you do to make your design better?

_____

_____

_____

_____

_____