



Fifth Grade Math

Study an Example Problem and Solution

In this lesson, you will work with whole numbers and decimals to solve real-world problems. Look at this problem and one solution.

Dog Collars

Alex is organizing a pet fair. Money from the fair will be donated to the local pet shelter. Alex's friend Bella will have a booth at the fair. Here is Bella's sign.

Adorable Dog Collars

Small \$8.99



Medium . . . \$9.99



Large \$10.99



Supplies to make a small collar cost \$1.50. Bella estimates that the supplies for each size collar cost \$0.50 more than the next smaller size. Bella hopes to make at least \$200 for the pet shelter by selling collars.

- Find how much Bella makes on each collar after paying for supplies.
- Show a way to make at least \$200 by selling collars.
- Include at least 5 collars of each size in your plan.

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

- | | |
|---|---|
| <input type="checkbox"/> Tell what is known. | a. Circle something that is known. |
| <input type="checkbox"/> Tell what the problem is asking. | b. Underline something that you need to find. |
| <input type="checkbox"/> Show all your work. | c. Draw a box around what you do to solve the problem. |
| <input type="checkbox"/> Show that the solution works. | d. Put a checkmark next to the part that shows the solution works. |

Alex's Solution

- I know the **selling price** of each collar. I need to find the **cost** to make each size collar and subtract it from the price.

Size	Price	Cost of Supplies	Amount left to Donate
Small	\$8.99	\$1.50	\$7.49
Medium	\$9.99	\$1.50 + \$0.50	\$7.99
Large	\$10.99	\$2.00 + \$0.50	\$8.49

- I'll round the donation amounts so that I can estimate.

I can multiply each rounded amount by 5 since I have to include at least 5 of each size collar.

$$\$7.49 \longrightarrow \$7 \text{ and } \$7 \times 5 = \$35$$

$$\$7.99 \longrightarrow \$8 \text{ and } \$8 \times 5 = \$40$$

$$\$8.49 \longrightarrow \$8 \text{ and } \$8 \times 5 = \underline{\$40}$$

$$\$115$$

- I can see that I need almost \$90 more to get to \$200. I can try to make about \$30 with each of the three collar sizes.

$$\$7 \times 4 = \$28$$

$$\$8 \times 4 = \$32$$

$$\$8 \times 4 = \$32$$

- Now I can find the actual amounts from 5 + 4 small collars, 5 + 4 medium collars, and 5 + 4 large collars.

$$\$7.49 \times 9 = (7 \times 9) + (0.4 \times 9) + (0.09 \times 9) \text{ and } 63 + 3.6 + 0.81 = 67.41$$

$$\$7.99 \times 9 = (7 \times 9) + (0.9 \times 9) + (0.09 \times 9) \text{ and } 63 + 8.1 + 0.81 = 71.91$$

$$\$8.49 \times 9 = (8 \times 9) + (0.4 \times 9) + (0.09 \times 9) \text{ and } 72 + 3.6 + 0.81 = \underline{76.41}$$

$$215.73$$

If Bella sells 9 of each size collar she will be able to donate \$215.73.

The solution works because it includes at least 5 collars of each size and it makes more than \$200.

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

I used a table
to organize my
information.

By rounding and
estimating first, I avoid
some computing with
decimals.

This is my
final answer.

Try **Another Approach**

There are many ways to solve problems. Think about how you might solve the Dog Collars problem in a different way.

Dog Collars

Alex is organizing a pet fair. Money from the fair will be donated to the local pet shelter. Alex's friend Bella will have a booth at the fair. Here is Bella's sign.

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Small	\$8.99 
Medium . . .	\$9.99 
Large	\$10.99 

Supplies to make a small collar cost \$1.50. Bella estimates that the supplies for each size collar cost \$0.50 more than the next smaller size. Bella hopes to make at least \$200 for the pet shelter by selling collars.

- Find how much Bella makes on each collar after paying for supplies.
- Show a way to make at least \$200 by selling collars.
- Include at least 5 collars of each size in your plan.

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

A. How can you use estimation to help find a solution?

B. How can you use the sample solution to plan how to find a different solution?

- **Solve It** Find a different solution for the Dog Collars 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** You may want to use ...

- partial products.
- area models.

- **Word Bank**

round	multiply	greater than
estimate	product	decimal

- **Sentence Starters**

- I can round _____
- If I multiply _____

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 Models** How can you use an area model to help find a solution?
- **Repeated Reasoning** If you are multiplying by 0.99, how can you multiply by a whole number and use subtraction to find the product?



Discuss

Models and Strategies

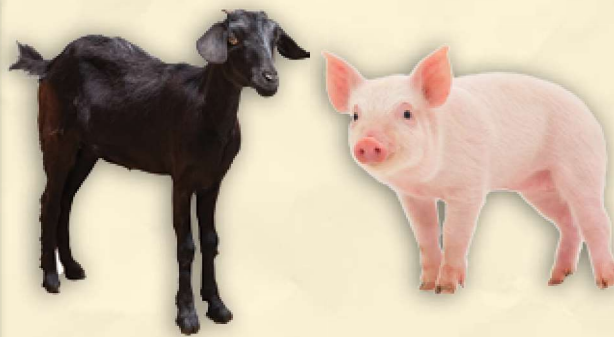
Read the problem. Write a solution on a separate sheet of paper.
Remember, there can be lots of ways to solve a problem!

Petting Zoo

The zoo where Alex works has agreed to bring some animals to the pet fair. Guests can pay to feed and play with the animals. Alex has to decide which animals to bring and how much food they will need.

Petting Zoo Notes

- Include 2 or 3 different kinds of animals.
- Include more than 10 but fewer than 20 animals.
- Have enough food to feed each animal a day's worth of food.



Alex reads the keeper's notes to find about how much an average animal eats in a day.

Notes	
Keeper's Notes	
About Feeding Animals	
Rabbit:	2.5 ounces of pellets and 4.2 ounces of vegetables
Goat:	4.5 pounds of hay and 2.25 pounds of grains
Small Pig:	5.5 pounds of food (mix of grains and vegetables)
Calf:	10 pounds of hay and 4.5 pounds of grains

How much food should Alex bring to the pet fair?

► **Plan It and Solve It** Find a solution to the Petting Zoo problem.

Write a detailed plan for Alex. Be sure to include:

- which animals and how many of each to bring to the pet fair.
- a list of the food she will need to feed all the animals for 1 day, including amounts of each kind of food.
- reasons for the choices you made.

Problem-Solving Tips

• Questions

- How does the size of the animal affect your choice?
- Which animals eat some of the same kind of food?

• Sentence Starters

- I would bring _____
- Alex needs about _____

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.

- **Make Sense of Problems** What will you do first? Why?
- **Make an Argument** How can you justify the choices you made?

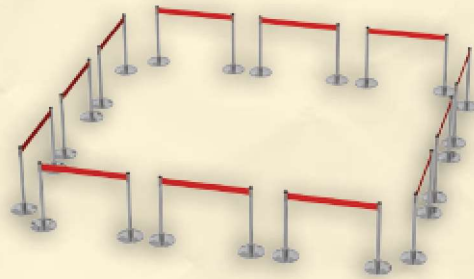
Read the problems. Write a solution on a separate sheet of paper.
Remember, there are many different ways to solve a problem!

Robot Area

Alex asked her friend Beau to bring his robots to the fair. Guests can buy tickets to play with the robots. Beau needs to rope off an area of the fairgrounds to keep his robots in sight. Read his notes.

Robot Area Notes

- The area should be rectangular.
- It needs to be more than 100 feet long and less than 100 feet wide.
- The area needs to be between 7,500 and 10,000 square feet.



What dimensions should the robot area have?

Solve It Describe an area that Beau can rope off for his robots.

- Give the length and width of the area.
- Give the area in square feet.
- Explain why your measurements work.

Reflect

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

- **Use Structure** How did you use place value ideas to think about numbers that would work?
- **Persevere** Did you try different combinations of numbers before deciding on a final answer? Explain.

Barely Used

Alex's friend Brandi has a collection of used books, CDs, and DVDs that people have given her. She will sell them at a booth at the pet fair. Brandi thinks she can sell enough items to make at least a \$100 donation to the pet shelter. Look at Brandi's prices.



What items can Brandi sell to make at least \$100?

► **Solve It** Find a combination of items that Brandi needs to sell to meet her goal.

- Include some of all four items.
- For each item, tell how many Brandi needs to sell and how much money she will make.
- Give the total amount Brandi will make selling all the items on your list.
- Explain why this total works.

► **Reflect**

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

- **Use Models** What equations or expressions did you use to find your solution?
- **Persevere** What were all of the steps you took to find a solution?

Introduction

At A Glance

Students examine a problem about selling dog collars to raise money where the math involves multiplying and adding decimals. 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 Bella is trying to do.

► English Language Learners

- 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 cost of supplies, price of collars, and income goal are given. The part to figure out is profit on each size collar and how many of each to sell.]

► Mathematical Discourse 1

- 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.

► Mathematical Discourse 2

- Explain that students will look at the 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**.

Use Whole Numbers and Decimals

Study an Example Problem and Solution

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Dog Collars

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- Find how much Bella makes on each collar after paying for supplies.
- Show a way to make at least \$200 by selling collars.
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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.

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► Mathematical Discourse

- 1 *What do you notice about the cost of supplies and the price of each size collar?*

Responses will vary. Students may notice that the prices all end with 99 cents. They may notice that each collar costs \$1 more than the next smaller size. They may notice that the cost of supplies for medium and large collars is an estimate, and that each larger size collar costs more than the next smaller size.

- 2 *How can you figure out how much money Bella can donate to the pet shelter for every small collar she makes?*

Students need to understand that Bella does not donate the total price

of the collar to the pet shelter. She first has to cover her costs for making the collar. Then she can donate what is left over. Students can explain this in terms of subtraction: selling price – cost of supplies = donation.

► English Language Learners

Discuss the uses of the word *make* in the problem. Bella *makes* dog collars; this means she takes materials and works with them to create a dog collar. Bella wants to *make* money to donate (give) to the pet shelter by selling the dog collars. Here, *make* does not mean she creates money; to *make* money is an idiom meaning to earn (get) money, typically by working or by selling something.

Alex's Solution

- I know the selling price of each collar. I need to find the cost to make each size collar and subtract it from the price.

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- I'll round the donation amounts so that I can estimate.

I can multiply each rounded amount by 5 since I have to include at least 5 of each size collar.

$$\$7.49 \rightarrow \$7 \text{ and } \$7 \times 5 = \$35$$

$$\$7.99 \rightarrow \$8 \text{ and } \$8 \times 5 = \$40$$

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\$115

- I can see that I need almost \$90 more to get to \$200. I can try to make about \$30 with each of the three collar sizes.

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- Now I can find the actual amounts from 5 + 4 small collars, 5 + 4 medium collars, and 5 + 4 large collars.

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$$\$7.99 \times 9 = (7 \times 9) + (0.9 \times 9) + (0.09 \times 9) \text{ and } 63 + 8.1 + 0.81 = 71.91$$

$$\$8.49 \times 9 = (8 \times 9) + (0.4 \times 9) + (0.09 \times 9) \text{ and } 72 + 3.6 + 0.81 = 76.41$$

215.73

If Bella sells 9 of each size collar she will be able to donate \$215.73.

The solution works because it includes at least 5 collars of each size and it makes more than \$200.

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

I used a table
to organize my
information.

By rounding and
estimating first, I avoid
some computing with
decimals.

This is my
final answer.

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Step By Step

- Read through the solution together, one section at a time. Read for understanding, helping students with any language challenges. Tell students that the speech bubbles text tells what Alex was thinking about as she wrote her solution.
- Discuss the sample solution with students. Help them interpret the table and see how Alex used the information she had gathered there.

► Hands-On Activity

► Mathematical Discourse 3 and 4

- Then, as a class, go back to do a close read, using the **Problem-Solving Checklist** to help analyze Alex's solution.
- Have students look back at the problem to find and circle where Alex wrote known, or given, information. [the price of collars and costs of supplies in the table, having to include 5 of each size].
- Then have students find and underline where Alex wrote what she needs to find out. [the amount to donate, the goal of donating \$200]
- As a class, find and box where Alex showed her work. [estimating collar prices and multiplying, adding the estimated products, comparing to \$200, the second round of multiplying, and finding the exact amounts and adding]
- Finally ask students to put a checkmark next to the place where Alex checked her solution. [the final paragraph]
- Tell students that they can use this as a model when they write their own solutions for this problem or other problems.

MP TIP Attend to Precision

Discuss the use of estimation and how that affects precision in this solution. Prompt students to consider other ways to use estimation to solve the problem. Elicit that exact calculation is needed in order to get to a complete solution. Discuss. (MP6)

► Mathematical Discourse

- 3 What information did Alex gather in the table? How does this help her solve the problem?

Descriptions should include the prices of each size collar, the cost of supplies, and the money to donate. Encourage students to describe any patterns they see. Have them describe the operations that Alex uses to calculate the cost of supplies and the money to donate.

- 4 Why do you suppose Alex used rounding and estimation? What would have happened if she did not estimate? Students should recognize that rounding and estimation allowed Alex to get a preliminary answer that was close to the actual answer, without having to do difficult, time-consuming calculations. If she

had not estimated, Alex would have taken more time and been more likely to produce errors. Also, the estimation acts as a check on the reasonableness of the final answer.

► Hands-On Activity

Use play money to subtract decimals.

Materials (for each pair): play money (10 \$1 bills, 20 dimes, 20 pennies)

Have partners count out the price of 1 collar using play money. Next, have them subtract the cost for supplies for that collar by taking away money. Have students record the subtraction sentence, e.g., $\$8.99 - \$1.50 = \$7.49$. Repeat with other collars.

Modeled and Guided Instruction

At A Glance

Students plan and solve the Dog Collars problem from the Introduction using a different approach and/or a different cost for supplies. 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. [Decide a cost for supplies and compute the donation amounts. Round the donation amounts. Estimate donation for 5 of each size collar. Estimate how many more collars are needed. Compute the exact amount.]

Mathematical Discourse

- Have students brainstorm some different steps than these that they might use to solve the problem. For example, they might round the prices of the collars, then round the cost of supplies, and finally subtract the cost of supplies for many collars from the money paid for many collars.

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.
- 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 plan for completing the task.
- Remind students that this problem has many correct answers, and many ways to find an answer.
- As students work on their plan, circulate to provide support and answer questions. Encourage them to experiment with ways to represent information as they work the problem.

Try Another Approach

There are many ways to solve problems. Think about how you might solve the Dog Collars problem in a different way.

Dog Collars

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- Find how much Bella makes on each collar after paying for supplies.
- Show a way to make at least \$200 by selling collars.
- Include at least 5 collars of each size in your plan.

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

- A. How can you use estimation to help find a solution?

- B. How can you use the sample solution to plan how to find a different solution?

Mathematical Discourse

Look at Alex's work for the exact amounts. Why is she multiplying \$7.49 by 9? \$7.99 by 9? And \$8.49 by 9?

Students should be able to explain that the dollar amounts are the exact amounts to be donated from selling one of each size collar. The other factors represent the number of collars. Alex had first estimated the donations for 5 of each kind of collar. Then she added 4 additional small collars, 4 additional medium collars, and 4 additional large collars.

Concept Extension

Discuss estimating and rounding.

Discuss the advantages and disadvantages of estimating and rounding in this context with the following questions.

- Did Alex round to the nearest cent, nearest dime, or nearest dollar? Would it have helped her to round to the nearest 10 dollars?

Alex rounded to the nearest dollar. If she rounded to the nearest ten dollars, all the donation amounts would have been rounded to \$10. The advantage is that the multiplying is even easier. One disadvantage is that when all the rounded amounts are the same, it hides the differences. Another disadvantage is that the rounded amounts are farther from the actual, so the estimate will be more misleading.

- Solve It** Find a different solution for the Dog Collars 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** You may want to use . . .

- partial products.
- area models.

- Word Bank**

round multiply greater than
estimate product decimal

- Sentence Starters**

- I can round _____
- If I multiply _____

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 Models** How can you use an area model to help find a solution?
- **Repeated Reasoning** If you are multiplying by 0.99, how can you multiply by a whole number and use subtraction to find the product?

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Scoring Rubric

Points	Expectations
4	Any rounding, adding, subtracting, or multiplying is done correctly and represents the problem situation. The solution includes selling at least 5 of each collar size, and nets at least \$200. Steps and conclusion are clearly explained and justified.
3	Any rounding, adding, subtracting, or multiplying correctly represents the problem situation and is close to error-free. The solution includes selling at least 5 of each collar size, and nets at least \$200. Steps and conclusion are explained and justified but may not be entirely clear.
2	Calculations include several errors and there may be some confusion about how to represent the problem. The solution includes selling at least 5 of each collar size, but may not net \$200. Explanations are not clear or may be missing parts.
1	The calculations do not represent the problem situation and contain significant errors. The student may have just added the selling prices for one of each collar size, or didn't recognize how to find a donation amount. Explanations are unclear or missing.

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 models, the word bank, and the sentence starters.
- Tell students they are welcome to look back at Alex's solution to get ideas for how to write a complete answer. Remind them to also use the **Checklist** as they work to help organize their thinking.
- Have students write their own complete solutions on Activity Sheet 1 (Solution Sheet 1) or on a blank 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

Donation amounts will be:

S: $\$8.99 - \$1.50 = \$7.49$; M: $\$9.99 - \$1.50 - \$0.50 = \7.99 ; L: $\$10.99 - \$1.50 - \$0.50 - \$0.50 = \$8.49$. If I round to estimate, I get S: \$7.00, M: \$8.00, L: \$8.00

8 of each is $8 \times 7 + 8 \times 8 + 8 \times 8 = 56 + 64 + 64 = 184$. I need more than 200, so I will add on 3 more large collars. $184 + 3 \times \$8 = \208 .

Check the actual amount now.

$$7.49 \times 8 = 7 \times 8 + 0.49 \times 8 = 56 + 3.92 = 59.92$$

$$7.99 \times 8 = 7 \times 8 + 0.99 \times 8 = 56 + 7.92 = 63.92$$

$$8.49 \times 11 = 8 \times 11 + 0.49 \times 11 = 88 + 5.39 = 93.39$$

If Bella sells 8 small collars, 8 medium collars, and 11 large collars, she can donate \$217.23. This is more than \$200 and it includes at least 5 collars of each size. The solution works.

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 understand what this problem requires.

► Mathematical Discourse 1

- Invite volunteers to point out what is known [kinds of animals and what they eat] and what they need to figure out [how many animals, what kinds, and what food they need for 1 day]

MP TIP Attend to Precision

Ask students to notice the units used for different kinds of food (ounces, pounds). Discuss how this might affect their work if students have a lot of rabbits and also some pigs at the fair. (MP 6)

- Have students discuss approaches for solving the problem. Discuss possible steps, ways to organize the information, tools and techniques that might be helpful, etc. Invite students to take notes.

► Mathematical Discourse 2 and 3

Discuss Models and Strategies

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

Petting Zoo

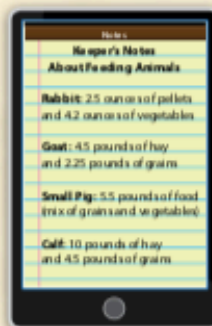
The zoo where Alex works has agreed to bring some animals to the pet fair. Guests can pay to feed and play with the animals. Alex has to decide which animals to bring and how much food they will need.

Petting Zoo Notes

- Include 2 or 3 different kinds of animals.
- Include more than 10 but fewer than 20 animals.
- Have enough food to feed each animal a day's worth of food.



Alex reads the keeper's notes to find about how much an average animal eats in a day.



How much food should Alex bring to the pet fair?

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► Mathematical Discourse

1 What do you need to include in your plan?

The information is scattered throughout the problem. Students should mention the number and kinds of animals and the amount of food needed for one day. They may also address parameters such as 2–3 kinds of animals and a total of 10–20 animals.

2 How will you organize the information?

Students need to consider up to 4 kinds of food, up to 3 kinds of animals, and how many animals of each kind to include. Well organized information will help them solve the problem. Some possible answers are lists, tables, diagrams, organized lists of equations.

3 Will you use estimation? Why or why not?

Learning to consider various tools and approaches is part of the planning process and needs to be practiced. Accept any response, as long as students are able to make a credible argument for their decisions.

Plan It and Solve It Find a solution to the Petting Zoo problem.

Write a detailed plan for Alex. Be sure to include:

- which animals and how many of each to bring to the pet fair.
- a list of the food she will need to feed all the animals for 1 day, including amounts of each kind of food.
- reasons for the choices you made.

Problem-Solving Tips

Questions

- How does the size of the animal affect your choice?
- Which animals eat some of the same kind of food?

Sentence Starters

- I would bring _____
- Alex needs about _____

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.

- **Make Sense of Problems** What will you do first? Why?
- **Make an Argument** How can you justify the choices you made?

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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 Alex'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

I need to bring 10–20 different animals to the fair and figure out how much food they need. I choose to bring farm animals, so I will bring goats, pigs, and calves. I will bring 4 of each for a total of 12. I want to bring equal numbers but keep the numbers small, because these animals take up a lot of space. I can make a table to show the food these animals need.

Animal	Hay	Grains	Vegetables
4 Goats	$4.5 \times 4 = 18$	$2.25 \times 4 = 9$	0
4 Pigs	0	$3 \times 4 = 12$	$2.5 \times 4 = 10$
4 Calves	$10 \times 4 = 40$	$4.5 \times 4 = 18$	0
Totals	$18 + 40 = 58$ pounds	$9 + 12 + 18 = 39$ pounds	10 pounds

So I will need 58 pounds of hay, 39 pounds of grains, and 10 pounds of vegetables each day.

Scoring Rubric

Points	Expectations
4	Solution steps, choices, and calculations are appropriate, correct, and clearly explained. The animals chosen match the criteria. The types and amounts of food match the animals chosen.
3	Solution steps or calculations may have minor errors. The animals chosen match the criteria. The types of food match the animals chosen but one amount may be incorrect. Explanations are clear and appropriate.
2	The solution steps and explanations are not clear or do not fully address the problem situation. Students may have chosen an incorrect number of animals or animal types. There is more than one error in food choices. There is at least one significant calculation error.
1	The steps and explanations are incomplete, missing, or not fully appropriate for the problem situation. The number or kinds of animals is incorrect, and food choices don't match the animals selected. Several calculations are incorrect. The amounts and types of food do not match the animals chosen.

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 a copy of Activity Sheet 2 (Solution Sheet 2) 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 for the class to discuss, compare, and critique. Alternatively, share the solution below and invite the class to discuss.

Possible Solution

I need to find measurements for a rectangular robot area that meet Beau's requirements.

I will try 110 feet long and 80 feet wide. To find the area of a rectangle, I can multiply the length by the width. $110 \times 80 = 8,800$. The area is 8,800 square feet.

110 feet is longer than 100 feet. 80 feet is less than 100 feet. 8,800 square feet is greater than 7,500 square feet and less than 10,000 square feet. So, the measurements work.

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!

Robot Area

Alex asked her friend Beau to bring his robots to the fair. Guests can buy tickets to play with the robots. Beau needs to rope off an area of the fairgrounds to keep his robots in sight. Read his notes.

Robot Area Notes

- The area should be rectangular.
- It needs to be more than 100 feet long and less than 100 feet wide.
- The area needs to be between 7,500 and 10,000 square feet.



What dimensions should the robot area have?

Solve It Describe an area that Beau can rope off for his robots.

- Give the length and width of the area.
- Give the area in square feet.
- Explain why your measurements work.

Reflect

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

- **Use Structure** How did you use place value ideas to think about numbers that would work?
- **Persevere** Did you try different combinations of numbers before deciding on a final answer? Explain.

Scoring Rubric

Points	Expectations
4	The solution includes a length longer than 100 feet and a width less than 100 feet. Students correctly multiply length by width to get the area, and label lengths and area with correct units. Students verify that the area is between 7,500 and 10,000 square feet.
3	The solution includes a length longer than 100 feet and a width less than 100 feet. Students correctly multiply length by width to get the area, but may forget to label the area in square feet or may not label the dimensions with feet. Students verify that the area is between 7,500 and 10,000 square feet.
2	The solution includes a length longer than 100 feet and a width less than 100 feet. Students make an error in the multiplication, and may forget to label units. The area is not between 7,500 and 10,000 square feet. Students do not verify that the solution.
1	The solution may include a length longer than 100 feet and a width less than 100 feet, but students may not multiply to find the area, or the multiplication contains significant errors. The area is not within the specified range. There is no explanation or verification of the answer.

Barely Used

Alex's friend Brandi has a collection of used books, CDs, and DVDs that people have given her. She will sell them at a booth at the pet fair. Brandi thinks she can sell enough items to make at least a \$100 donation to the pet shelter. Look at Brandi's prices.



What items can Brandi sell to make at least \$100?

Solve It Find a combination of items that Brandi needs to sell to meet her goal.

- Include some of all four items.
- For each item, tell how many Brandi needs to sell and how much money she will make.
- Give the total amount Brandi will make selling all the items on your list.
- Explain why this total works.

Reflect

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

- **Use Models** What equations or expressions did you use to find your solution?
- **Persevere** What were all of the steps you took to find a solution?

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Scoring Rubric

Points	Expectations
4	The solution includes some of each item type, and the total amount earned for each item type is correctly calculated. The total earned is correctly calculated, and is more than \$100. Explanations are clear and correct.
3	The solution includes some of each item type. The total amount earned for each item type is correctly calculated or there may be a small error, but the decimal is placed correctly. The total is more than \$100. Explanations may lack detail.
2	The solution includes some of each item type. There are several calculation errors, and the decimal may be placed incorrectly at least once. The actual total may not be more than \$100. Explanations lack detail.
1	The solution may not include some of each item type. The decimal may be placed incorrectly in the product, or may not be included at all. The solution may not show adding to find the total. The total, if calculated, may be well under \$100.

Step By Step

Solve It

- Have students work through this problem entirely on their own, writing the complete solution on a copy of 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** 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 for the class to discuss, compare, and critique. Alternatively, share the solution below and invite the class to discuss.

Possible Solution

I need to find a number of each of the different items on Brandi's list that she can sell to make more than \$100. I can start with 10 of each item. If Brandi sells 10 of each item, here's how much she will make.

Item	Price per item	Price for 10
Paperback Books	\$0.95	$10 \times \$0.95 = \9.50
Hardcover Books	\$3.75	$10 \times \$3.75 = \37.50
DVDs	\$3.25	$10 \times \$3.25 = \32.50
CDs	\$1.95	$10 \times \$1.95 = \19.50

Brandi will make $9.50 + 37.50 + 32.50 + 19.50 = \99.00 . That's not enough.

Let's say she sells 3 more paperback books. $3 \times \$0.95 = \2.85 . $\$99.00 + \$2.85 = \$101.85$. So if she sells 13 paperback books, 10 hardcover books, 10 DVDs, and 10 CDs, she will make \$101.85. That's more than \$100, so this total works.



Fifth Grade Social Studies



CHAPTER 15 TENNESSEE PRIOR TO STATEHOOD

- 5.26 Explain how the name “Tennessee” originated from the Yuchi word Tana-tsee, referring to where the rivers come together.
- 5.27 Identify the cultures of the major indigenous settlements in Tennessee, including: The Paleo (Coats-Hines Site), Archaic, Woodland (Old Stone Fort, Pinson Mounds), and Mississippian (Chucalissa Indian Village)

Read the following text and answer the discussion questions in complete sentences using evidence from the text to support your answer. Take the quiz to check your understanding of the text.

TEXT: <https://tnsoshistory.com/chapter1>

DISCUSSION QUESTIONS:

<http://tsla.tnsosfiles.com.s3.amazonaws.com/education/Student%20Blue%20Book/Discussion%20Questions/Chapter%201%20Discussion%20Questions.pdf>

QUIZ:

<http://tsla.tnsosfiles.com.s3.amazonaws.com/education/Student%20Blue%20Book/Quizzes/Chapter%201%20Quiz.pdf>

CHAPTER 16 TENNESSEE AMERICAN INDIAN TRIBES

- 5.28 Identify the pre-colonial American Indian tribes residing in Tennessee, (e.g., Cherokee, Chickasaw, Creek, and Shawnee), and analyze their various customs and traditions.

Use a device with a QR reader app to scan each code. These QR codes will take you to articles that will help you complete the table. You will also need to click [HERE](#) to gather more information to identify the customs and traditions of the Tennessee American Indian tribes. (Pages are also in the PPT on video.)

CHEROKEE



CHICKASAW



CREEK



SHAWNEE



NAME OF TRIBE:

LOCATION IN TN:

ROLES OF MEN:

ROLES OF WOMEN:

DWELLING:

GOVERNMENT/RELIGION:

INTERESTING FACT:

NAME OF TRIBE:

LOCATION IN TN:

ROLES OF MEN:

ROLES OF WOMEN:

DWELLING:

GOVERNEMENT/RELIGION:

INTERESTING FACT:

NAME OF TRIBE:

LOCATION IN TN:

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NAME OF TRIBE:

LOCATION IN TN:

ROLES OF MEN:

ROLES OF WOMEN:

DWELLING:

GOVERNMENT/RELIGION:

INTERESTING FACT:

WANT TO KNOW MORE?

VISIT THESE SITES AND EXPLORE VIRTUALLY!

FIRST TENNESSEANS

http://www.tn4me.org/era.cfm/era_id/1

COATS-HINES SITE

<https://tennesseearchaeologycouncil.wordpress.com/tag/coats-hines/>

https://wikivisually.com/wiki/Coats-Hines_Site

PINSON MOUNDS

<http://www.tnhistoryforkids.org/history/virtual-tours/virtual-tours/pinson-mounds.2461492>

<https://tnstateparks.com/parks/pinson-mounds>

OLD STONE FORT

<http://www.tnhistoryforkids.org/history/virtual-tours/virtual-tours/old-stone-fort.2456226>

<https://tnstateparks.com/parks/old-stone-fort>

CHUCALISSA INDIAN VILLAGE (Scroll to bottom to watch video.)

<https://www.memphis.edu/chucalissa/>

PREHISTORIC AMERICAN INDIANS

<https://mcclungmuseum.utk.edu/2009/01/01/prehistoric-american-indians/>

http://www.tn4me.org/era.cfm/era_id/2

CHEROKEE MUSEUM

<http://www.tnhistoryforkids.org/history/virtual-tours/virtual-tours/cherokee-museum-nc.2448505>

<https://www.cherokeemuseum.org/>

<http://www.sequoyahmuseum.org/>

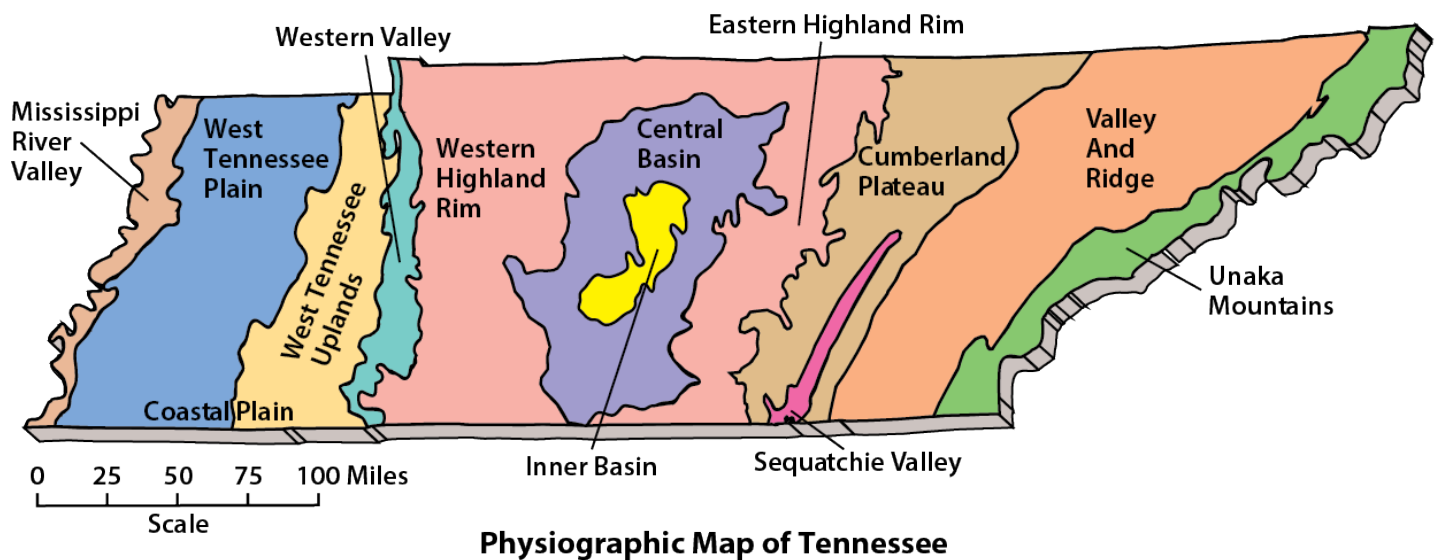
CHICKASAW

<https://www.chickasawculturalcenter.com>

Land and Native People

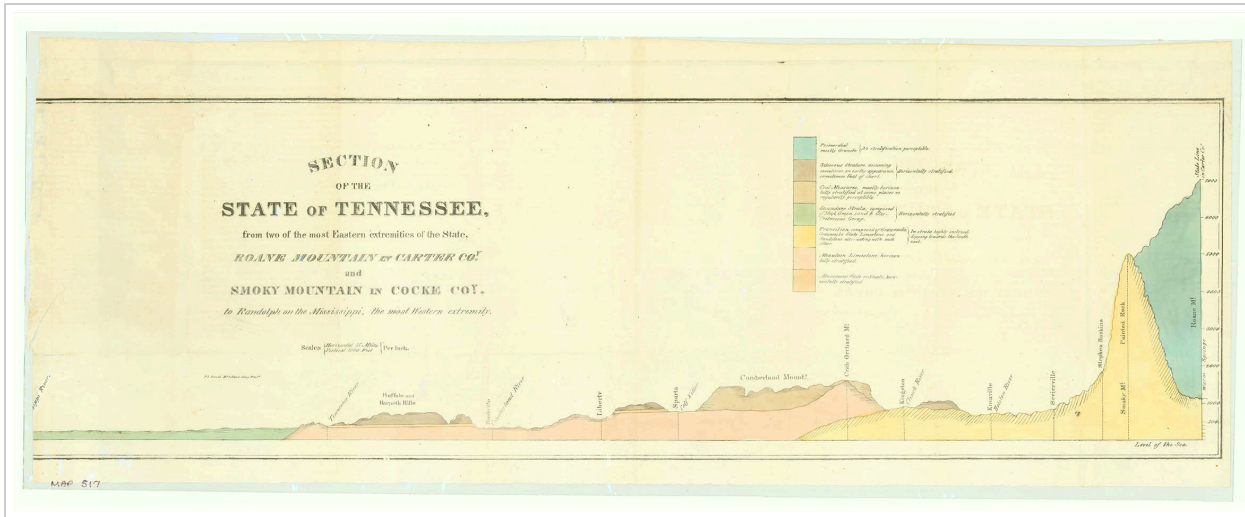
Tennessee has a great variety of rivers, landforms, climate regions, and plant and animal species. Numerous groups of people have settled in Tennessee beginning with Native Americans about 12,000 years ago. The lasting impact of Native Americans can be seen in the number of places with Native American names. In fact, the name “Tennessee” comes from the Native American word “Tanasi.” Settlers came to Tennessee to take advantage of its abundant natural resources, so it seems fitting to begin by describing the land of Tennessee.

Tennessee divides naturally into three “**grand divisions**,” East Tennessee, Middle Tennessee, and West Tennessee. East Tennessee is an upland, often mountainous region. Middle Tennessee has foothills surrounding a lowland area known as a basin. The land of West Tennessee is part of the Gulf Coastal Plain. Travelers coming to the state from the east first encounter the towering Unaka and Smoky Mountains, followed by the Great Valley of East Tennessee. Moving across the Valley floor, they next face the Cumberland Plateau, which historically attracted little settlement and presented a barrier to westward migration. West of the Plateau, the terrain descends into the Central Basin of Middle Tennessee—a rolling, fertile countryside that drew hunters and settlers alike. The Central Basin is surrounded on all sides by the Highland Rim—the western ridge of which drops into the Tennessee River Valley. Across the river in West Tennessee begin the low hills and alluvial plain. An alluvial plain is formed from deposits of gravel, clay, and sand carried by a river. These geographical “grand divisions” correspond to the distinctive political and economic cultures of the state’s three regions.



Tennessee possesses a climate favorable for people and agriculture, with abundant rainfall and mild temperatures which create a long growing season for plants. The area is generally free from the long droughts and freezes found in some regions of the United States. The three major rivers that flow around and across Tennessee—the Mississippi, Tennessee, and Cumberland Rivers—have created watersheds that cover most of the state. A **watershed** is an area of land drained by a particular river or stream. The Tennessee River forms near Knoxville and flows in a southwesterly direction into Alabama, then loops back north to the Kentucky border. The Cumberland River drains northern Middle Tennessee, and West Tennessee is covered by a network of slow-moving streams, swamps, and lakes that flow

directly into the Mississippi River. These rivers and the smaller streams that feed into them have played a significant role from the earliest times by providing fish and shellfish, by serving as major transportation routes, and by creating the areas of fertile soils that attracted farmers.



Cross section map of Tennessee from the Unaka Mountains to the Mississippi River



Early map showing the Mississippi, Tennessee, and Cumberland River systems

Fossils found in rocks across Tennessee show that the state was covered by warm, shallow seas in the distant past. Coal-bearing layers of rock are found throughout the Cumberland Plateau. Plant and dinosaur fossils are found in the sandstones of West Tennessee. Mammoths, mastodons, and giant sloths were driven south by the advancing glaciers of the Ice Age. Their remains can be found in West and Middle Tennessee.

The story of human presence in Tennessee begins with the last retreat of the Ice Age glaciers, when a colder climate and forests of spruce and fir covered the region. Late Ice Age hunters probably followed animal herds into this area about 12,000–15,000 years ago. These nomadic Paleo-Indians camped in caves and rock shelters and left behind their distinctive arrowheads and spear points. They may have used such Paleolithic or Stone Age tools to hunt the mastodon and caribou that lived in eastern Tennessee. The Coats-Hines site in Williamson

County shows clear evidence of Paleo-Indians in Tennessee. Mastodon bones with cut marks and stone tools were discovered at the site. About 12,000 years ago, the region's climate began to warm, and the vegetation changed from being mostly conifers to our modern deciduous forest. Large numbers of deer and elk were attracted to the abundant supply of mast, or food produced by oak, hickory, chestnut, and beech trees. Warmer climate, the extinction of the large Ice Age mammals, and the spread of deciduous forests worked together to transform Native American society.

During what is known as the Archaic period, descendants of the Paleo-Indians began to settle on river terraces. River terraces are areas of flat land raised above the valley floor. Archaic people gathered wild plant food and shellfish in addition to hunting game. Sometime between 3000 and 900 BC, natives took the crucial step of growing edible plants such as squash and gourds—the beginning of agriculture. Growing crops provided Archaic people with a dependable food supply and freed them from seasonal shortages of wild plant foods and game. With a more secure food supply, populations grew rapidly and scattered groups combined to form larger villages.



Early man hunted mastodon that roamed during the last Ice Age. *The Mastodon Hunt. Painting by Carlyle Urello, courtesy of the Tennessee State Museum*



Woodland Indians first developed farming in Tennessee.

Woodland Indians farming in Tennessee. Painting by Carlyle Urello, courtesy of the Tennessee State Museum.

The next major stage of Tennessee prehistory lasted almost 2,000 years and is known as the Woodland period. During this era, Native people began to make containers and other objects out of clay. This craft is known as pottery. They also began to live in settled farming communities and to construct burial mounds. Wealth increased and Native society began to stratify, or divide, into different social classes. Native Americans in Tennessee made the transition from societies of hunters and gatherers to well-organized tribal, agricultural societies living in large, permanent towns. Pinson Mounds and Old Stone Fort were Woodland period sites. Pinson Mounds in Madison County was a ceremonial site with 17 mounds surrounded by an earth wall. Old Stone Fort in Coffee County was initially believed to be a defensive structure, but later studies have shown it was a ceremonial site as well.



Stone pipe from Roane County



Engraved from the Mississippian period. Image

*courtesy of the Tennessee State Museum. **shell gorget from the Mississippian period. Image courtesy of the Tennessee State Museum.***

The peak of prehistoric cultural development in Tennessee occurred during the Mississippian period (900–1600 AD). Population grew after the introduction of new varieties of corn and beans. As chieftains became more powerful, territorial warfare increased and ceremonial temples and public structures were built. The complexity of Mississippian society is seen in the elaborate pottery styles and personal items, such as combs, pipes, and jewelry, it produced. The Chucalissa site near Memphis is the most well known Mississippian mound in Tennessee.

People who do not have their own written language are often forgotten or known mostly from the documents written by their conquerors. This is what happened to the native inhabitants of Tennessee. Most of what is known about their culture comes from the writings of European Americans who often viewed Native American culture as inferior to their own culture. Disease, warfare, and the European fur trade had transformed Native American society long before white settlement reached the Tennessee country.

The Cherokee were not the first inhabitants of East Tennessee. Archeological evidence shows that East Tennessee had densely populated native communities prior to European contact. Native Americans in Tennessee began to grow maize, or corn, around 800–1000 AD. This development allowed towns and villages to grow rapidly. During the Mississippian period, organized chiefdoms developed in population centers such as Mound Bottom in Middle Tennessee and Toqua and Citico in East Tennessee. In 1540–1542, Hernando DeSoto led a group of 600 conquistadors, or Spanish soldiers, through the mountains into East Tennessee where he encountered the remnants of this civilization. Spanish entradas, or exploratory expeditions, led by DeSoto, Tristan de Luna, and Juan Pardo, came through the region between 1540 and 1567.

When the English and French began to explore the region 150 years later, the densely populated valleys and towns that DeSoto had found were gone or deserted. Historians are not certain what happened to these early inhabitants. The most likely explanation is that the Native Americans were wiped out by diseases such as smallpox and measles carried by the Spanish. Because Native Americans had never been exposed to European diseases, they had no natural resistance, or immunity, to the diseases. The introduction of European diseases to North and South America was one aspect of the Columbian Exchange. The Columbian Exchange refers to the exchanges of plants, animals, diseases, and technology between the Old World (Europe, Africa, and Asia) and the New World (North and South America) following Columbus's voyage in 1492.

Some of the **indigenous** or native peoples, such as the Yuchi, remained, but they were driven out in the early eighteenth century by the Cherokee, who apparently migrated into the region after it was emptied by disease. There is evidence of a large-scale massacre at the Yuchi town of Chestowee in 1714. Cherokee hostility probably caused the Yuchi to abandon eastern Tennessee and settle further south in Georgia. The Yuchi people were one of the early tribes of eastern Tennessee. "Tanasi," which gave its name to the state, may have originally been a Yuchi word, as was "Hogohegee," the name given to the Tennessee River on many eighteenth-century maps.

The arrival of French explorers and Virginian traders in the mid-1600s marked the beginning of the end of Tennessee's native culture. For the next hundred years, the trade in deer and beaver pelts was the main connection between European Americans and Native Americans. From the western reaches of Virginia and the Carolinas into what would be known as Tennessee, the Cherokee ruled, having earlier driven the Creek, Yuchi, and Shawnee from the region. They were the last native group to actually live in part of Tennessee. The colonial fur trade would change the Cherokee way of life forever. The system made the Cherokee dependent on European trade goods and led to the overhunting of game. At the same time, trade greatly increased intertribal warfare. It also drew the Cherokee into European wars,

such as the French and Indian War at the end of the eighteenth century. Soon, Europeans would come seeking land, not deerskins, from the Native Americans.



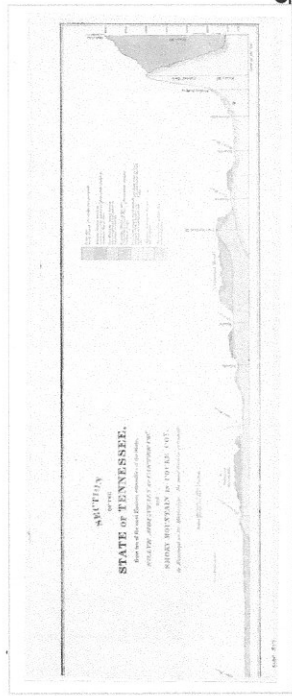
Saul's Mound, which stands at seventy-two feet, at Pinson Mounds State Archaeological Park.

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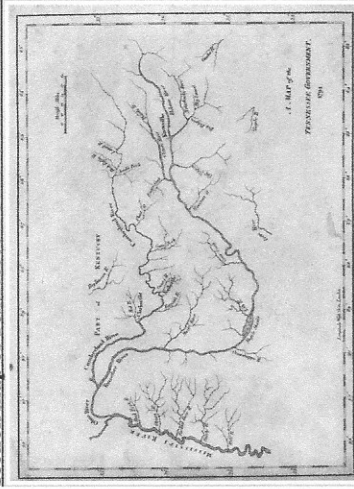
The map illustrates the diverse topography of Tennessee, from the mountainous east to the flat coastal plains in the west. Key features include the Eastern Highland Rim, the Valley and Ridge, the Cumberland Plateau, the Unaka Mountains, the Sequatchie Valley, the Inner Basin, the Central Basin, the Western Highland Rim, the Western Valley, the West Tennessee Uplands, the West Tennessee Plain, the Coastal Plain, the Mississippi River Valley, and the West Tennessee region.

Scale: 0 25 50 75 100 Miles

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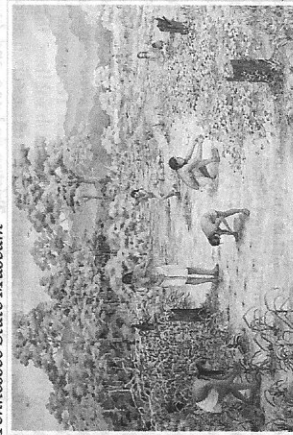
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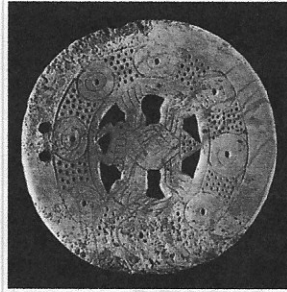
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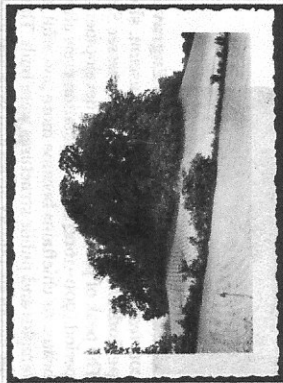
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Saul's Mound, which stands at seventy-two feet, at Pinson Mounds State Archaeological Park.

Chapter 1: The Land and Native People Discussion Questions

1. Describe Tennessee's climate and its effect on agriculture.
2. What are Tennessee's major rivers?
3. Who were the first people in Tennessee and how did they get food?
4. What evidence of Paleo-Indians was found at the Coats Hines site?
5. How did the development of agriculture by the Archaic people impact their society?
6. What change in the social structure of Native American groups occurred during the Woodland period?
7. What was the purpose of the Pinson Mounds and Old Stone Fort?
8. What does the elaborate pottery and jewelry of the Mississippian period reveal about their society?
9. How did contact with European explorers impact Native Americans in Tennessee?
10. What is the origin of the name Tennessee?

Chapter 1: The Land and Native People Quiz

1. Which of the following statements about the effect of Tennessee's climate on agriculture is true?
 - a. Tennessee has a mild climate which creates a long growing season for agriculture.
 - b. Tennessee has a harsh climate which creates a short growing season for agriculture.
 - c. Tennessee has a mild climate which creates a short growing season for agriculture.
 - d. Tennessee has a variable climate which creates an unpredictable growing season for agriculture.
2. Which of the following is not a major river of Tennessee?
 - a. The Mississippi River
 - b. The Missouri River
 - c. The Cumberland River
 - d. The Tennessee River
3. Who were the first people in Tennessee?
 - a. Archaic people
 - b. Woodland people
 - c. Paleo-Indians
 - d. Mississippian people
4. How did the Paleo-Indians get food?
 - a. Paleo-Indians were farmers
 - b. Paleo-Indians traded with their neighbors for food
 - c. Paleo-Indians harvested food from the sea.
 - d. Paleo-Indians were hunter-gatherers
5. What evidence of Paleo-Indians was found at the Coats Hines site? (Choose 2)
 - a. Stone cutting tools
 - b. Iron cutting tools
 - c. Mastodon bones with cut marks
 - d. Deer bones with cut marks
6. How did the development of agriculture by the Archaic people impact their society? (Choose 2)
 - a. Their population grew
 - b. They formed larger villages
 - c. They fought their neighbors more frequently
 - d. They moved often
7. What change in the social structure of Native American groups occurred during the Woodland period?
 - a. Woodland people became hunter-gatherers
 - b. Woodland people started to make pottery
 - c. Woodland people became divided into different social classes
 - d. Woodland people developed a religion based on constellations
8. What was the purpose of the Pinson Mounds and Old Stone Fort?
 - a. They were used for defense
 - b. They were used to store food
 - c. They were used for ceremonies
 - d. They were used as palaces for the chieftains
9. The complexity of Mississippian society is shown by? (Choose 2)
 - a. Jewelry
 - b. Homes
 - c. Pottery
 - d. Iron tools
10. How did contact with European explorers impact Native Americans in Tennessee?
 - a. Native Americans became rich through trade
 - b. Native Americans died from diseases introduced by the Europeans
 - c. Native Americans developed kingdoms based on European models
 - d. Native Americans developed agriculture

11. What is the origin of the name Tennessee?

- a. Comes from the Yuchi word Tanasi
- b. Comes from the Spanish word Tenica
- c. Comes from the French word Tamates
- d. Comes from English word Tenacious

12. Which of the following was created by Mississippian people?

- a. Coats-Hines site
- b. Chucalissa Indian Village
- c. Pinson Mounds
- d. Old Stone Fort



Cherokee
Indian

Native American Indian Facts

Cherokee Indian Facts



The Cherokee Indians were a very large Native American tribe that originally settled in the southeast portions of the United States. They settled in North and South Carolina, Georgia, and Tennessee after migrating south from the Great Lakes region. The word Cherokee translates into "those who live in the mountains". Read on for facts about who these Native American Indians are and what makes them so historically significant, what their beliefs were, what clothing they wore, and how men and women's roles were defined.

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Cherokee Indian Interesting Facts

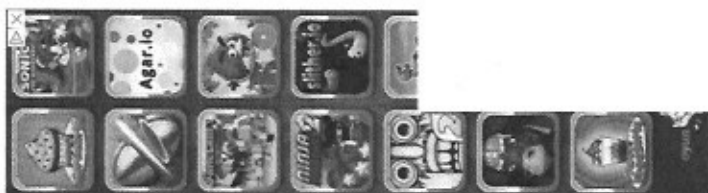
- The Cherokee were able to learn to read and write thanks to a brilliant scholar named Sequoyah. He is the only documented Native American to successfully create a writing system

for his tribe. The alphabet he created allowed the Cherokee people to become literate in a language all their own.

- Over 4,000 Cherokee men and women died in the 1800's when President Andrew Jackson forced them to leave their homelands and relocate to Oklahoma. He had the U.S. army march them there during the cold winter months and many suffered from starvation, disease, and hypothermia. This is known as the Trail of Tears.
- The men and women both had distinct yet equal roles. The men would hunt, fight when necessary, and make political decisions while the women would farm, tend to the children and the property and make social decisions on behalf of the clan. Only the men could become war chiefs yet the women were the landowners and could also become peace chiefs.
- During the American Civil War most Cherokee sided with the Confederacy.

Cherokee Indian Facts - Clothing

- Cherokee men did not wear much other than simple loin cloths made of deer hide in the warm summer months along with moccasins on their feet. In the cooler weather, they added to fur to their moccasins and wore deer skin shirts and leggings, and fur robes and hats.



- Cherokee women usually wore short deer skin skirts or "tear" dresses and loose blouses in the warm months and like the men, they wore fur or animal hide robes that were sometimes decorated with jewelry and feathers to indicate their status.
- Once cloth was introduced by the Europeans, cotton blouses and skirts became popular, especially the well-known ribbon blouse.
- Primitive Cherokee men and women were primarily hunters and gatherers. The men hunted deer, fowl, and small forest animals. Later on fishing became a secondary source of food. The women harvested beans, corn, squash, pumpkins, and other wild food items.

Cherokee Indian Facts- Weapons and Tools

- The Cherokee became expert weapon makers in an effort to protect themselves from other tribes and eventually the white man.
- Hunting weapons of choice included bows and arrows, blowguns (some of which could be as long as nine feet), clubs made out of stone, and spears.
- Fighting weapons included arrows, tomahawks (made and used with enough accuracy to split a coconut tree from 30 feet away), and later on axes and guns.
- Tools used in daily life were stone adzes or hand axes, hoes, various knives, shovels, wooden rakes and

fish hooks made from bone and sticks.

Cherokee Indian Facts - Arts and Crafts

- This particular tribe was and still is well-known for their talented artwork. One such example is the Cherokee Star Quilts. These quilts are made from many different torn pieces of cloth that have been sewn together.
- The Cherokee also made clay pots, carved pipes, wooden canoes, clothing, river cane baskets, bead jewelry, soapstone carvings, elaborate dance masks and rattles, and double wall baskets. The baskets were another Cherokee specialty. They would often dye them early on with black walnut and blood root. They were later able to add other colors by using butternut, wild berries, and yellow root.

Cherokee Indian Facts - Shelter

- Cherokee houses resembled an upside down basket. They were solidly constructed, made of river cane and interwoven branches and plastered with mud. They had thatched roofs and the entire dwelling was a bit sunken into the ground.
- There were usually anywhere from 30 to 60 of these dwellings in a village.
- In later periods the Cherokee built log cabins with bark roofs.



Chickasaw
Warrior

Native American Indian Facts

Chickasaw Indian Facts

MENU

Southeast American Indian Facts
Caddo Indians Facts
Cherokee Indians Facts
Chickasaw Indian Facts
Choctaw Indian Facts
Creek Indians Facts
Seminole Indian Facts

Introduction - Chickasaw Indians

These Native Americans are a relatively small Indian tribe who settled in the Southeast U.S. after migrating from the west. This area

included river banks and waterways throughout the states of Alabama, Mississippi, Tennessee, Missouri and Kentucky. The facts below will give you information and insight into who the Chickasaw are, what they are known for, where they lived, and how their daily lives were structured. This information is written for both kids and adults.

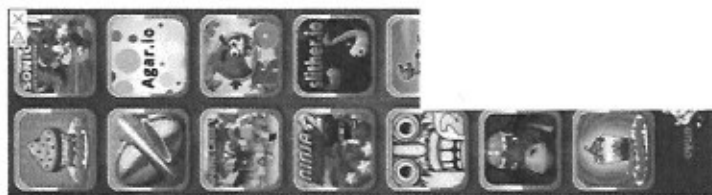
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General Chickasaw Indian Facts

- When translated, the word Chickasaw means rebel or rebellion. It's a fitting term as these Indians had many enemies. They were known for their warlike tendencies and constant

fighting with both surrounding tribes and the French.

- In 1830 during the presidency of President [Andrew Jackson](#) the Indian Removal Act became law. This resulted in the forced relocation of the Chickasaw to Oklahoma.
- They ate a diet of vegetables consisting mainly of beans, corn and squash. They also enjoyed a variety of nuts, fruits, and herbs. Tribal men hunted deer, bear, turkey, and other wildlife. They often made food such as porridge and hominy and drinks such as sassafras tea.
- Today, English is spoken by most Chickasaw people, however preservation of the language is very important to the Chickasaw and there are about 1000 people that still speak Chickasaw today, most of them elders. The language is described as easy on the ear and even musical sounding.
- The tribe was known to use very specific and extreme forms of punishment such as execution, public whipping, beatings, hair cropping for women who participated in adultery, and even the use of dried snake teeth raked against the skin.
- The Chickasaw tribe was named as one of the Five Civilized Tribes by white settlers. The Chickasaw, Choctaw, Cherokee, Creek and Seminole all most likely garnered this distinction because of their conversion to Christianity and their



relatively advanced form of government. There tribes were not an alliance.

- The Chickasaws were known for their beautifully colored baskets and containers. They would use natural resources such as sassafras root and sumac to make beautiful colored dyes for baskets and other arts and crafts. Also popular were woodcarvings and pottery, known for its dark clay color. When materials for these items became scarce after the move to Oklahoma, beadwork and bead jewelry gained in popularity.

Facts about Chickasaw Tribe Houses

- The Chickasaw were a semi-nomadic tribe. Families lived in villages comprised of mini-complexes with more than one house per family and sometimes up to 200 families.
- The winter house was the largest shelter and built to protect against the cold winters. The summer house was sectioned into two rooms with plenty of ventilation and raised beds to maximize space.
- There was also a ball field, a council house, a fortified stockade for shelter against attacks, a corn or grain storage building and a ceremonial building.

Facts about Chickasaw Roles of Men and Women

- Although Chickasaw society was matrilineal and women controlled their own land and raised crops, they also held traditional roles in the Chickasaw tribe. They tended to domestic life by cooking, cleaning and looking after children. Women also looked after slaves which were often obtained through war with other tribes. Young girls had the option of spending their day as they wished but often chose to help their mothers.
- The men were fierce hunters and warriors favoring the use of bows and arrows. They would often travel great distances to hunt. Boys began training for warfare and hunting at a very young age.
- Storytelling was an important way to pass down traditions and legends from one generation to the next and both sexes participated.
- Both men and women enjoyed music, arts, and crafts.

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Southeast American Indian Facts



Treaty of
Fort
Jackson

Native American Indian Facts Creek Indian Facts

Introduction - Creek Indian

Just who exactly were the Creek Indians, what was their culture like and how did they live? This mostly peaceful group of Southeast American

Indian Tribes had

roots in Georgia, Alabama, North Carolina and Florida until they were forced out by other tribes and Europeans. They often referred to themselves as Muskogee or Muscogee. The Creek were

known to wear highly decorated and sophisticated clothing. Like most Indian tribes, the men and women had specific roles and their kids learned their expected roles at a young age. Among the many more interesting facts about the history of these people include where they built their houses, what food they ate, and what weapons they used.

Click here for a great selection of [Creek Indian books on AMAZON](#).

MENU

[Southeast American Indian Facts](#)

[Caddo Indians Facts](#)

[Cherokee Indians Facts](#)

[Chickasaw Indian Facts](#)

[Choctaw Indian Facts](#)

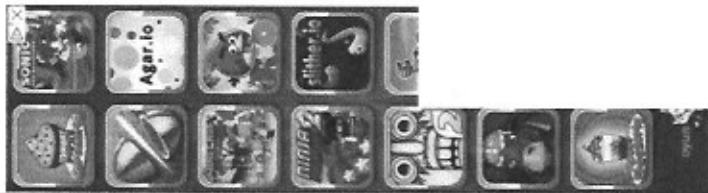
[Creek Indians Facts](#)

[Seminole Indian Facts](#)

Creek Indian General Facts and Information

- There are two separate Creek Indian tribes today, the Poarch Band of Creek Indians in Alabama and the Oklahoma Creek Indians.
- A small group of Creek Indian descendants remained in their tribal land and currently live on a reservation which is 57 miles from Mobile, Alabama.
- The Battle of Burnt Corn in 1813 was part of the larger Creek War. It was initially considered to be a small skirmish, with the Creek Indians of Alabama emerging as the victors, but it ultimately resulted in the defeat of the entire Creek nation.
- In 1814 Andrew Jackson signed the Treaty of Fort Jackson which forced the majority of Creek Indians off their land. The few families who were able to remain had aided the U.S. government.
- Regular contact and trading with the Europeans and English settlers did not begin for the Creek Indians until the late 1600s.
- Multiracial children were the result of the Creeks intermarriage with the white settlers. This occurred frequently and the Creek wives were happy to teach their non-Indian husbands the Creek culture.

Creek Indian Cultural Facts



- The Creek Indians were not a nomadic tribe but rather set up thatched-hut houses in villages with a town square as the center of activities. It was here that community events such as dances and meetings took place.
- When a village got to big to manage, they simply split into two self-sufficient villages but kept close ties to one another.
- The Creeks evolving relationship with the white settlers had a negative impact on their ability to remain self-sufficient. While they were able to trade many goods with the settlers, they began trading for guns which changed their cultural way of hunting.
- Similar to many other Indian tribes, the Creek men were skilled hunters and protectors of their family. They relied on animals for both food and clothing.
- The women of the tribe did the housekeeping, farming and were the primary caregivers to the children. They were responsible for maintaining a variety of crops and gathered fruits, herbs and roots.
- The staple food of the Creek Indians diet was corn. They also ate a wide variety of meats including boar, deer, bison, turkey and fish which was plentiful during the summer.
- Common weapons included nets, spears, traps, bow and arrows, tomahawks, and war clubs.

- Early Creek jewelry often included boar tusks and antlers. The artwork they are most known for is their basket weaving, woodcarvings and glazed pottery.

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Southeast American Indian Facts



Shawnee
Indian

Native American Indian Facts Shawnee Indian Tribe Facts

MENU

Northeast American Indian Facts
Chippewa Indians Facts
Huron Indian Facts
Iroquois Indian Facts
Mohawk Indian Tribe Facts
Shawnee Indian Facts
Shinnecock Indian Facts

Introduction

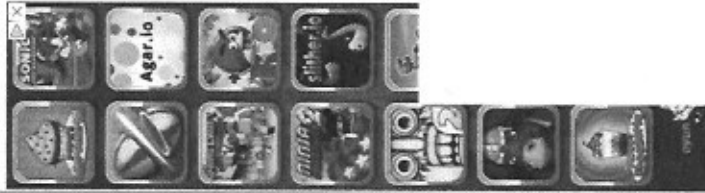
The Shawnee Indians are originally Northeast American Indian tribes. Today they reside mainly in Oklahoma where the tribes are now headquartered. They live on what is

technically considered trust land but is also called a reservation. The name Shawnee, when translated, means Southerner. Although the Shawnee tended to move around a lot, historically, there are several states where they were known to have large populations. They include present day Virginia, West Virginia, Ohio, Kentucky, Maryland, Indiana and Pennsylvania. The below list of information about the Shawnee Indians is broken down into interesting facts about the tribe including why their language is almost extinct today.

Click here for a great selection of [Shawnee Indian books on AMAZON](#).

Shawnee General Facts

- Three separate and federally recognized tribes exist today. They are:
 - Absentee-Shawnee Tribe
 - Shawnee Tribe
 - Eastern Shawnee Tribe
- Today, English is the predominant language spoken these Native Americans. Although some tribal elders do speak the Shawnee language; it is quickly becoming an endangered language because it is not being taught to children.
- The Shawnee tribe tended to be very nomadic. They moved often, mostly to avoid confrontations with other tribes and only fought when it was necessary to protect their families.
- Because of their nomadic nature, their homes were never permanent structures. They lived in temporary dome-shaped homes called wigwams which were constructed of tree bark and sap, brush, cattails and sometimes hide.
- Several Northeast American Indian tribes including the Shawnee are known for a style of dance called Stomp Dance which is held for both social and religious purposes.
- Although they did not always get along, the Cherokee Indians to the south were very important to the Shawnee. The Shawnee adopted a lot of music and dance from them and regularly traded with them.



- In the early 1800s, disease and war brought the Shawnee population of over 10,000 tribe members to a mere 3,500. The numbers have since increased and now there are approximately 15,000 Shawnee Indians living today.

Shawnee Daily Life Facts

- The Shawnee women were farmers. They predominantly grew squash, beans and several varieties of corn on the land around their homes.
- Women spent a lot of time doing arts and crafts. They are known for their beautiful woodcarvings, pottery and beadwork. They would also weave bags and rugs and create rope out of wild hemp.
- The Shawnee men were responsible for going to war when necessary, mainly as a means of protecting their family.
- The men did the hunting and fishing for their families. For food, the Shawnee preferred deer, buffalo and turkey to other animals but would eat whatever they could catch with bows and arrows, spears and nets.
- Fur trade was an important part of Shawnee life so a great deal of time was spent hunting and trapping for that purpose.
- The Shawnee are proud of their ancestors and their heritage and spent a great deal of time telling stories as a way of passing on important historical information.

Shawnee Clothing Facts

- The Shawnee are not known for their elaborate clothing. Both men and women wore fairly basic clothing styles that were often adopted from other Indian tribes that they came into contact with.
- Women mostly wore wraparound skirts with leggings while the men wore traditional breechcloths with leggings.
- Ponchos and moccasins were standard attire for men and women.

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Northeast American Indian Facts

Cherokee

The **Cherokee** lived in the mountainous region of East Tennessee. The tribe was considered to be Woodland Indians.



winter home

In the winter, the Cherokee lived in houses made of woven saplings plastered with mud. The roof was made of poplar bark. In summer, they lived in open-air dwellings with roofs also made of bark.

The Cherokee lived in villages, usually along rivers.



summer home

Men and Women Work Together

It took women and men to make a successful Cherokee village.

- The women planted, grew, and harvested crops, such as corn, beans, squash, and sunflowers. Women cooked cornbread, soup, stew, and other dishes on stone hearths.
- The men hunted deer, turkey, and small game. They also fished in the lakes and rivers. The men crafted weapons, such as tomahawks, battle hammers, knives, bows and arrows, spears, and axes.

Cherokee culture and traditions included:

- ➔ Men and women wore clothing made of woven fiber or deerskin
- ➔ Cherokee people wove baskets, carved pipes, and made pottery
- ➔ Men shaved their heads except for a scalp lock (single lock of hair on crown of head)
- ➔ Storytelling was very important to their culture
- ➔ Women wore bead necklaces and copper armbands

A Good Government Example :

The Cherokee organized themselves into towns. The government of each town operated separately. Each town had two governments. The "white" government met when the tribe was at peace. The "red" government met when the tribe was at war. Men and women equally participated in these councils. During a council, clan members would sit together. Leaders sat in the center. The goal of any meeting was to discuss what was best for the tribe. Everyone had a chance to share ideas and opinions. Decisions of what would be the best choices for everyone were then recommended. It was a very civilized and fair way to govern.

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Chickasaw

The **Chickasaw** lived near the Mississippi River. The river often flooded. This tribe built their villages on high ground to avoid rising waters.

Like the Cherokee, the Chickasaw tribe had their roots based upon the land and its resources. Over time, they built on this knowledge to create town sites and a way to govern their people with leaders and laws. They traded with other tribes, and later, with the French and English explorers and colonists. They had their own religion. Chickasaw were mainly peaceful farmers, but they would engage in warfare if necessary.

A Culture of Clothing

The Chickasaw took pride in their dress, hair, and accessories. Chickasaw women were responsible for making clothes, shoes, and jewelry. Some of their methods included:

- making clothing from animal skins or by weaving plant fibers
- sewing with fishbone needles and deer sinews
- constructing buffalo robes with shaggy wool linings
- making shoes from deer, bear, and elk skin
- crafting jewelry with conch shells



Illustration of a Chickasaw Indian (1775)

Unique hairstyles were also part of the Chickasaw culture. Men shaved their heads except for a long lock of hair on top, called a scalp lock. Women wore their hair tied up with strings of beads.

Creek

The Creek settled in Middle Tennessee. They were good hunters, skin tanners, and fur processors. They became known for their fine craftsmanship, especially copper metalwork.

More customs and traditions of the Creek:

- Their village chief was called the mico.
- Their villages were organized into clans.
- The Creek had a matrilineal society. Creek children were born into the mother's clan.
- They organized into large networks of farms and towns.
- They engaged in long distance trading with other tribes.



Vocabulary

matrilineal: tracing ancestry through the mother's side of the family

Shawnee

The Shawnees were a nomadic people. During colonial times, groups of them lived in nearly every region east of the Mississippi River. By the 1670s, they were living along the Cumberland River in what is now Tennessee. They hunted animals and traded their furs with the Europeans in the area.

Many of the Shawnee began to wear European-style clothing and wore cloth turbans or a type of bandana on their heads. Their diet consisted of animals, such as rabbits, turkey, or deer, along with corn, beans, dried fruit, and nuts.



Wigwam

- They spoke the Algonquian language.
- Their name means "Southerner."
- The Shawnee were farmers and hunters.
- They believed they were created by the Great Spirit, a woman they called "Our Grandmother."
- The Shawnee made shelters called "wigwams" from bark and reed mats or thatch spread over a pole frame.
- One of the tribe's most famous chiefs was Tecumseh.

Show what you know...

Now that you have learned about the Native Americans from the early days of Tennessee, use what you know and choose a tribe that you think would be the most interesting tribe to grow up in. Read about their customs, what they did for food and for housing.

Choose one of the tribes and pretend you were one of the tribal members. Write a journal entry to describe what a day in your life would be like. For example: "I am a member of the Cherokee tribe and I live in the mountains in East Tennessee. This morning I got up and" Try and put as much information about a typical day in your life as a tribe member. Then share your journal entry with someone in your home.

Taking it further....Use your imagination..

Now that you know something about the early Tennessee Native American tribes, build a model of a village or of a dwelling of a tribe of your choosing.

Steps:

1. Draw a picture of what you would like your model to look like.
2. Gather a shoebox or piece of cardboard or even just a piece of construction paper to use as the base.
3. Begin creating a dwelling place (hut or other) out of materials you have on hand. Look at the pictures in the text to see how different tribes built their homes. Think about why they built them that particular way. For example, building huts on higher ground because of the river flooding.
4. Add grass, dirt, fires, animals or people made of clay or paper.
5. Just keep creating until you have added everything a tribe may have.
6. Enjoy showing off your model!



Chapter 1: “The Land and Native People” Discussion Questions KEY

1. Tennessee’s climate is mild and has a positive effect on the growing season. According to paragraph 3 of the text, “Tennessee possesses a climate favorable for people and agriculture, with abundant rainfall and mild temperatures which create a long growing season for plants.”
2. Tennessee’s major rivers are the Mississippi, Tennessee, and Cumberland.
3. The first people of Tennessee were the Paleo-Indians, and they got food by hunting. According to paragraph 5, arrowheads and spear points were found in caves and rock shelters.
4. The Coats-Hines site shows evidence that the Paleo peoples used stone tools to hunt mastodon. According to paragraph 5, “Mastodon bones with cut marks and stone tools were discovered at the site.”
5. The development of agriculture by the Archaic people impacted their society by giving them “a dependable food supply and freed them from seasonal shortages of wild plant foods and game,” according to paragraph 6.
6. The change in the social structure of Native American groups during the Woodland period was transitioning from hunter-gatherers to “well-organized tribal, agricultural societies living in large, permanent towns,” according to paragraph 7.
7. The purpose of the Pinson Mounds was a ceremonial site with 17 mounds surrounded by an earthen wall. The purpose of the Old Stone Fort was for defense of their town and a ceremonial site as well.
8. The elaborate pottery and jewelry of the Mississippian period revealed that they were a complex society.
9. Contact with European explorers impacted Native Americans in Tennessee by disease, warfare, and fur trade.
10. The origin of the name of Tennessee is from the Yuchi tribe living in East Tennessee word, “tanasi” and may have originally been from the Yuchi word “Hogohegee” which was “the name given to the Tennessee River on my eighteenth-century maps,” according to paragraph 12.

Chapter 1: The Land and Native People Quiz

KEY

- Which of the following statements about the effect of Tennessee's climate on agriculture is true?
 - ☒ Tennessee has a mild climate which creates a long growing season for agriculture.
 - ☐ Tennessee has a harsh climate which creates a short growing season for agriculture.
 - ☐ Tennessee has a mild climate which creates a short growing season for agriculture.
 - ☐ Tennessee has a variable climate which creates an unpredictable growing season for agriculture.
- Which of the following is not a major river of Tennessee?
 - ☐ The Mississippi River
 - ☒ The Missouri River
 - ☐ The Cumberland River
 - ☐ The Tennessee River
- Who were the first people in Tennessee?
 - ☐ Archaic people
 - ☐ Woodland people
 - ☒ Paleo-Indians
 - ☐ Mississippian people
- How did the Paleo-Indians get food?
 - ☐ Paleo-Indians were farmers
 - ☐ Paleo-Indians traded with their neighbors for food
 - ☐ Paleo-Indians harvested food from the sea.
 - ☒ Paleo-Indians were hunter gatherers
- What evidence of Paleo-Indians was found at the Coats Hines site? (Choose 2)
 - ☒ Stone cutting tools
 - ☒ Iron cutting tools
 - ☐ Mastodon bones with cut marks
 - ☐ Deer bones with cut marks

- How did the development of agriculture by the Archaic people impact their society? (Choose 2)
 - ☒ Their population grew
 - ☐ They formed larger villages
 - ☐ They fought their neighbors more frequently
 - ☐ They moved often
- What change in the social structure of Native American groups occurred during the Woodland period?
 - ☐ Woodland people became hunter gatherers
 - ☐ Woodland people started to make pottery
 - ☒ Woodland people became divided into different social classes
 - ☐ Woodland people developed a religion based on constellations
- What was the purpose of the Pinson Mounds and Old Stone Fort?
 - ☐ They were used for defense
 - ☐ They were used to store food
 - ☒ They were used for ceremonies
 - ☐ They were used as palaces for the chieftains
- The complexity of Mississippian society is shown by? (Choose 2)
 - ☒ Jewelry
 - ☐ Homes
 - ☒ Pottery
 - ☐ Iron tools
- How did contact with European explorers impact Native Americans in Tennessee?
 - ☐ Native Americans became rich through trade
 - ☒ Native Americans died from diseases introduced by the Europeans
 - ☐ Native Americans developed kingdoms based on European models
 - ☐ Native Americans developed agriculture

11. What is the origin of the name Tennessee?

- a. Comes from the Yuchi word Tanasi
- b. Comes from the Spanish word Tenica
- c. Comes from the French word Tamates
- d. Comes from English word Tenacious

12. Which of the following was created by Mississippian people?

- a. Coats-Hines site
- b. Chucalissa Indian Village
- c. Pinson Mounds
- d. Old Stone Fort

KEY

NAME OF TRIBE:

Cherokee

LOCATION IN TN:

Mountains of East TN

ROLES OF MEN:

Hunting, fishing, crafting weapons, war, and
Making political decisions

ROLES OF WOMEN:

Planted, grew, and harvested crops
Cooked meals, and made social decisions
Made and wore jewelry from beads and copper

DWELLING:

Winter home: woven saplings plastered with mud
Summer home: open air dwellings with bark roofs

GOVERNMENT/RELIGION:

“White” government during peace time
“Red” government during war time

INTERESTING FACT:

Men and women participated equally in council
meetings and Sequoyah created written language

NAME OF TRIBE:

Chickasaw

LOCATION IN TN:

Near Mississippi River in West TN on high ground
Semi-nomadic

ROLES OF MEN:

Hunters and warriors

ROLES OF WOMEN:

Cooked, cleaned, and looked after
children and made jewelry
Matrilineal

DWELLING:

Winter home: Large and built to protect against cold
Summer home: Made of 2 rooms and open

GOVERNMENT/RELIGION:

Advanced with punishment for breaking laws

INTERESTING FACT:

Enjoyed music, storytelling, arts, & crafts such
as colored baskets, containers, woodcarving, pottery

NAME OF TRIBE:

Creek

LOCATION IN TN:

Middle TN
Not nomadic

ROLES OF MEN:

Hunters & protectors

ROLES OF WOMEN:

Took care of children, farmed, maintained crops,
Gathered fruits, herbs, & roots
Matrilineal

DWELLING:

Huts with thatched roofs

GOVERNMENT/RELIGION:

Town square for meetings & ceremonies

INTERESTING FACT:

Made pottery, baskets, jewelry, woodcarvings,
and weapons

NAME OF TRIBE:

Shawnee

LOCATION IN TN:

Middle TN near Cumberland River
Nomadic to protect family and avoid fighting

ROLES OF MEN:

Went to war and protected their family
Hunted & fished

ROLES OF WOMEN:

Farmers/grew vegetables
Made pottery, woodcarvings and beadwork
Wove bags and rugs

DWELLING:

Wigwams made of bark and reed mats spread over
spread over wood frame

GOVERNMENT/RELIGION:

“Stomp Dance”
Believed they were created by the “Great Spirit”
Who was a woman “Our Grandmother”

INTERESTING FACT:

Most famous chief was Tecumseh
Shawnee means “Southerner”



Fifth Grade

ELA

There will be a short video lesson of a Knox County 5th 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: Adapting

ESSENTIAL QUESTION: How do people adapt to difficult situations?

Remind your child that people adapt in a variety of ways. Ask your child one way they've adapted. Tell them as they read, they'll be looking for clues to explain how people adapt to difficult situations.

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.

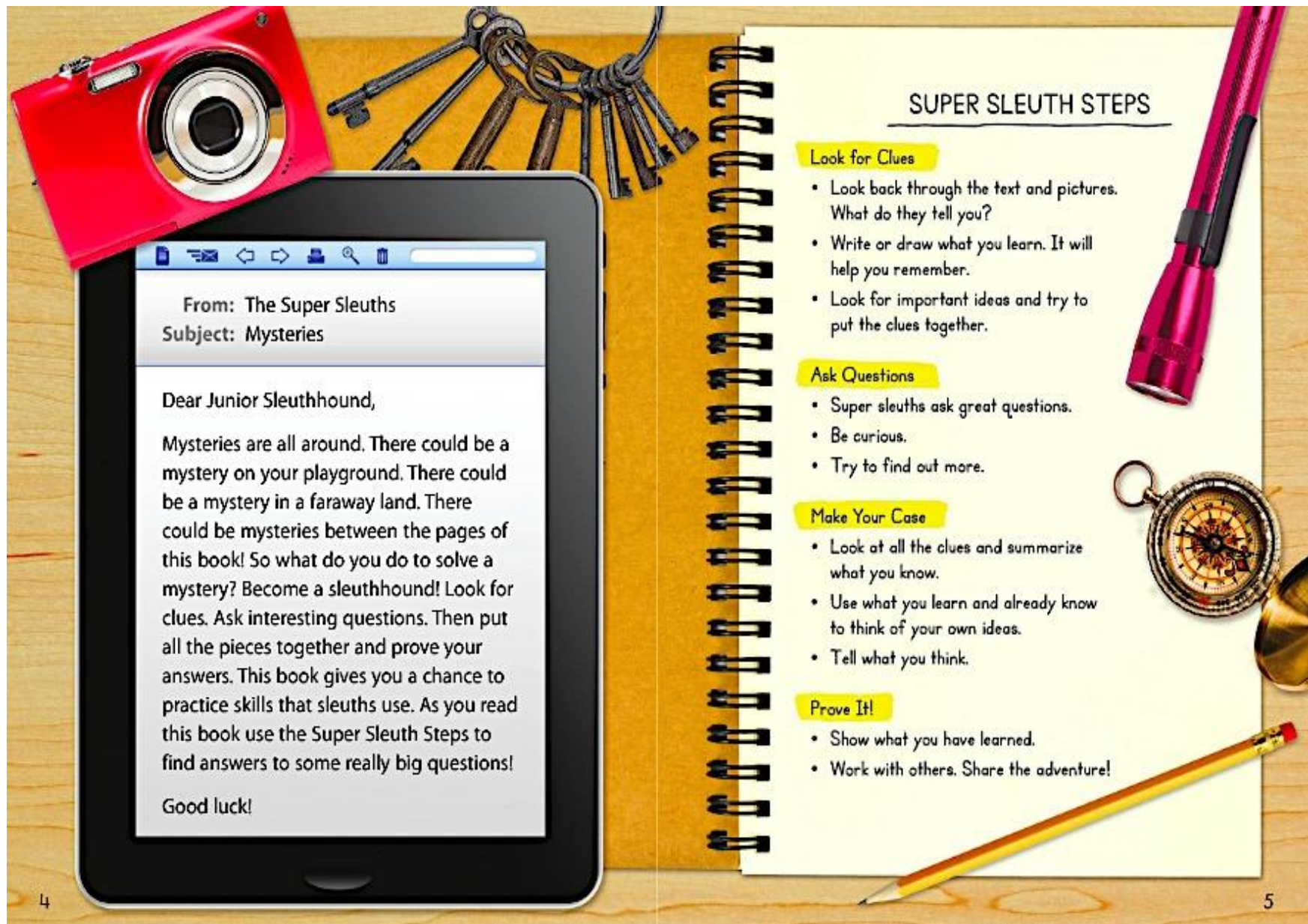
At the end of the text, there is a "Be a Sleuth" section containing questions to discuss and write about the text.

- Look for Clues – You may ask your child to underline evidence for this question or you can discuss how mangroves might benefit from Spiral Island II. Be sure that students refer back to the details in the text. Also, refer back to the essential question – How do people adapt to difficult situations?
- 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.
- Make Your Case – This question is a written task. Your child should be able to write a paragraph stating their opinion, supplying reasons or evidence to support their opinion, and providing a conclusion or closing statement. They can also create an illustration of their writing.

Extension Activities:

Design your own structure made of recycled material

- draw a model including labels
- write a "how to" explaining the steps to create the structure
- with adult permission, use recycled materials in your home to create a structure



Unit 4

Adapting

Greetings, Sleuthhounds!

In this unit, you will be looking for clues about adapting to different things. Here are some sleuth tips to help you. Good luck and have fun!



Sleuth Tips

Gather Evidence

How do sleuths remember clues?

- Sleuths might not remember everything. They take careful notes and write down details in case they forget.
- Sleuths find creative ways to keep track. They take notes, make lists, draw diagrams, and create charts.

Ask Questions

Why do sleuths ask questions?

- Sleuths use questions to help them gather more evidence. These questions can help them draw a conclusion.
- Sleuths think questioning can be wonderful and might lead to unexpected answers.

Make Your Case

How do sleuths disagree with other sleuths?

- Sleuths know that other sleuths might disagree. They understand the value in learning from others.
- Sleuths respect the conclusions of others. A super sleuth wants to find out how other sleuths used the evidence.

Prove It!

What do sleuths do before showing what they have learned?

- Sleuths remember to review the details in their notes, diagrams, and charts. They highlight what is most important.
- Sleuths want to persuade and convince others. They may write down key topics or use an outline.

A Green Island?

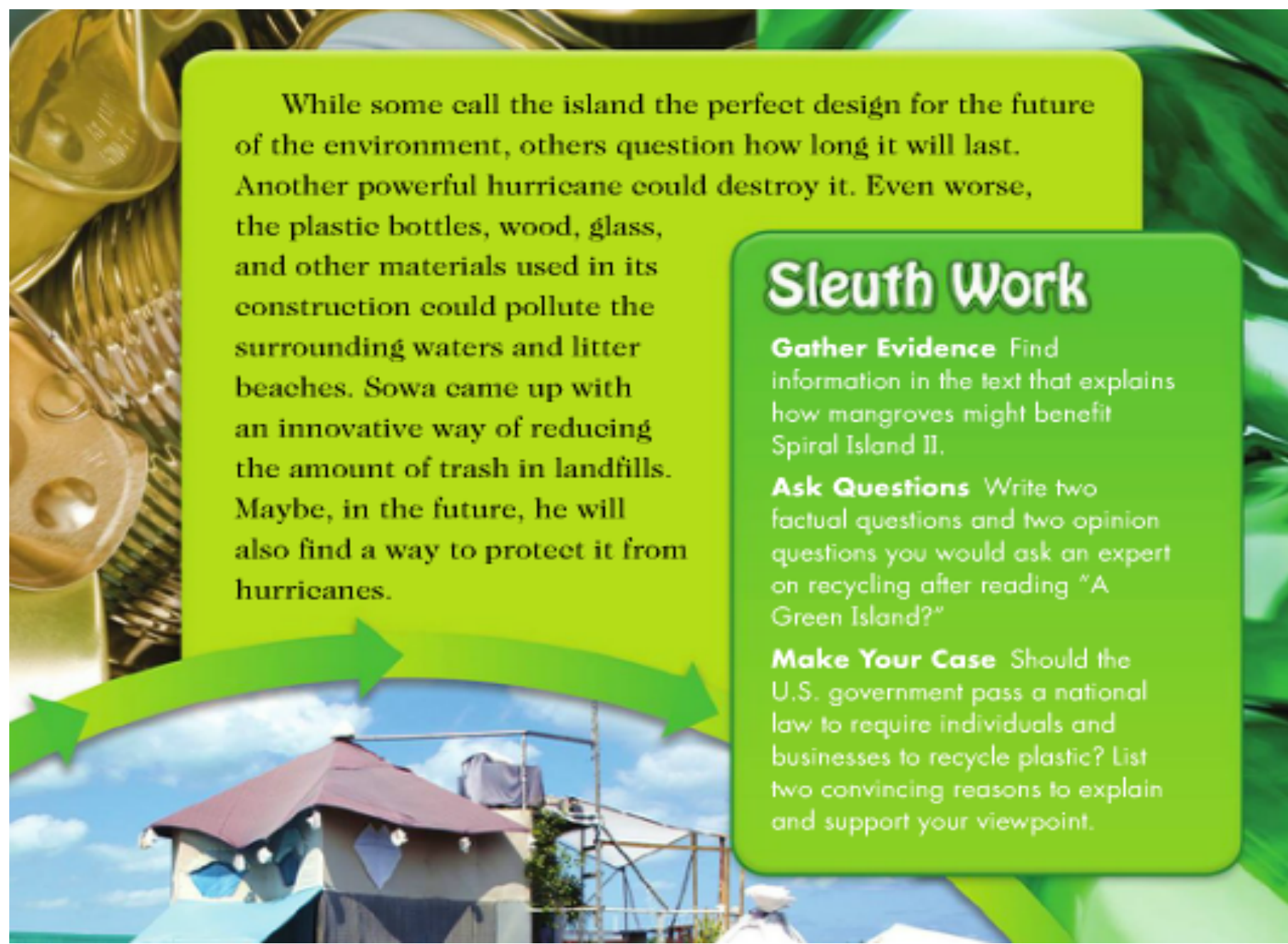
Recycling is nothing new. People have found ways to make something new from something old for thousands of years. In today's world, we hear a lot about helping the environment and conserving natural resources. Many people are adapting their lifestyles in an effort to make the planet a good place to live in the future. Recycling cans, paper, and plastic bottles and bags helps to reduce the amount of trash that ends up in landfills.

Would you believe that someone has created an entire island using only recycled products? It's true. "Rishi" Sowa is a British artist and ecological pioneer. He built Spiral Island I atop about 250,000 plastic bottles in the waters off the coast of Mexico. Unfortunately, Hurricane Emily destroyed Spiral Island I in 2005, and most of it washed up on the beach.

However, what happened to Spiral Island I did not end Sowa's dream. He began building Spiral Island II in 2007. He and dozens of volunteers again gathered thousands of used plastic bottles to keep the island afloat. Mangroves, which are trees and bushes with underwater root systems, now grow on the island. Sowa expects the roots to weave together and eventually provide a strong base. Since mangroves attract other plant life, they should help the island grow. It is now more than sixty feet in diameter. Coral and sandy beaches are beginning to surround the island.

Sowa continues to enhance his floating home. He used bamboo and plywood from trash piles to construct a two-story house. It includes a rooftop level. He also created a solar-powered waterfall system and is designing a machine that will use fresh water to wash clothes. Mirrors inside a clear barrel will use the sun's heat to warm the water. The second island is in a lagoon near Cancún, Mexico. Sowa's plan is to break it free and move it into the ocean as a free-floating island.



The background of the slide is a collage. On the left, there are several recycling symbols (three chasing arrows forming a triangle) in a metallic, golden-brown color. On the right, there are green, leaf-like patterns. At the bottom, there is a photograph of a building with a red roof and a blue sky with white clouds. A large, curved green arrow points from the left side of the slide towards the right, passing behind the text boxes.

While some call the island the perfect design for the future of the environment, others question how long it will last. Another powerful hurricane could destroy it. Even worse, the plastic bottles, wood, glass, and other materials used in its construction could pollute the surrounding waters and litter beaches. Sowa came up with an innovative way of reducing the amount of trash in landfills. Maybe, in the future, he will also find a way to protect it from hurricanes.

Sleuth Work

Gather Evidence Find information in the text that explains how mangroves might benefit Spiral Island II.

Ask Questions Write two factual questions and two opinion questions you would ask an expert on recycling after reading "A Green Island?"

Make Your Case Should the U.S. government pass a national law to require individuals and businesses to recycle plastic? List two convincing reasons to explain and support your viewpoint.



Fifth 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.



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.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Packing Test: Place 3 books on top of package.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Water Test: Drop 5 drops of water on package.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Step 4: Improve design.

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