Summer Adventure!



Peg + Cat—Big Problems

Powered by a Ready To Learn Grant

This out-of-school resource was developed by Maryland Public Television.

The contents of this activity were developed under a grant from the Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government. [PR/Award No. U295A100025, CFDA No. 84.295A].
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Topic: Measuring, Estimating, Counting, Shapes, Spacial Sense
Theme: Peg + Cat – Big Problems
Ages: 4-5

Introduction



Peg and Cat have some REALLY BIG PROBLEMS – and in this unit, they will need help solving them! Each day, Peg and Cat will be faced with a new problem; they may need to find a missing toy, fill the bathtub for a bubble party, or perhaps rescue a baby fox. To help them out, children will need to learn new math skills, like using a pan balance, estimating capacity, or building a 3-D structure. At the end of every day, children will join Peg and Cat in a round of song to celebrate their problem-solving skills.

Math Overview

This unit focuses on math skills such as measuring, estimating, counting, and shapes for four- and five-year-olds. Refer to the More About Math to learn additional information about these math topics as they relate to the Peg + Cat: Big Problems learning activities.

Before You Begin

Create a free account on PBS LearningMedia to access videos for this Summer Adventure. http://www.pbslearningmedia.org
Prepare the following materials:

Part 3: The Messy Room Problem



- **Print Peg + Cat: Missing in My Room handout (one copy per child)**
- **Write a series of four or more clues using position words like under, over, near, and behind. The first three clues should describe the location of subsequent clues. The last clue should describe the location of a small "treasure" you've hidden. For example, you may write Find the next clue under the rug where we have circle time.**

Part 4: The Baby Fox Problem



- **Print and cut out the Baby Fox handout and tape it to the end of the ruler.**
- **Organize materials so that each pair of children in your class will receive a paper plate with 20 toothpicks and 20 marshmallows.**

Part 5: The Race Car Problem

- **Create a "race course" on the floor with masking tape or painter's tape. Use the tape to mark a starting line and a finish line (approximately 20 feet apart from each other.)**

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Handy Resource Guide

Get Ready! Your summer adventure includes videos, online games and mobile apps, hands-on activities and books. Use this resource chart to plan ahead.

WATCH



PBS KIDS Videos

Part 1: The Missing Toy Problem
- Peg + Cat: Peg Finds Her Marble (3:10)

Part 2: The Bubble Party Problem
- Peg + Cat: Problem Solved (:08)
- Peg + Cat: Peg and Cat Estimate (2:08)

Part 3: The Messy Room Problem
- Part 3: The Messy Room Problem

Part 4: The Baby Fox Problem
- Peg + Cat: Baby's Block Tower (1:36)
- Peg + Cat: Building Steps (2:23)
- Peg + Cat: Problem Solved (:08)

Part 5: The Race Car Problem
- Peg + Cat: The Tallepega 20 (2:00)
- Peg + Cat: Add One (2:04)
- Peg + Cat: Problem Solved (:08)

PLAY

Online Games & Mobile Downloads



Part 1: The Missing Toy Problem
- Peg + Cat: Happy Camel
- Sid the Science Kid: Pan Balance

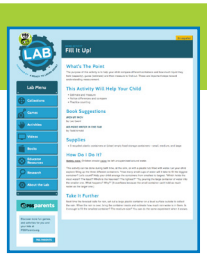
Part 2: The Bubble Party Problem
- Peg + Cat: Bubble Bath

Part 3: The Messy Room Problem
- Cat in the Hat: Deep Sea Follow Me
- Hungry Pirates

Part 4: The Baby Fox Problem
- Peg + Cat: Baby Fox's Big Machine
- Dinosaur Train: Buddy's Gem Hunt

Part 5: The Race Car Problem
- Peg + Cat: Race Caray

EXPLORE



Hands-on Activities

Part 1: The Missing Toy Problem

Balancing Act
- Balance scale, or materials to make one (hanger, string, and two plastic cups)
- Several small plastic bowls or cups with equal amounts of dry cereal inside. One bowl or cup should also have a small but fairly heavy toy hidden inside (for example, a small ball for playing catch).

Part 2: The Bubble Party Problem

Fill It Up!
- Three or more small plastic containers of different sizes
- One small bucket, like those used to make sand castles
- Large pitcher of very soapy water or bubble solution
- Bubble wands (enough for a few children to blow bubbles at a time)
- Chart paper
- Marker

Hands-On Activity: Estimating with Crayons
- 1 sandwich or snack sized clear plastic bag (Ziploc)
- 2 Container-small and large
- Large Container of crayons

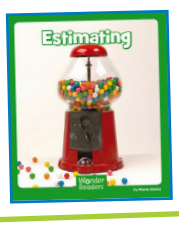
Part 3: The Messy Room Problem
- Peg + Cat: Missing in My Room handout (one copy per child)
- Hunting for Treasure
- 4- 5 clues already placed for treasure hunt
- Box or bag for a "treasure chest"
- Small objects for the "treasure" (toys, books, candies, pack of crayons, etc)
- Paper
- Marker or pen

Part 4: The Baby Fox Problem
- Mini marshmallows (20 for each child)
- Toothpicks (20 for each child)
- Paper plates (one for each child)
- Ruler
- Baby Fox handout

Part 5: The Race Car Problem
- Pom Pom Race
- Pom poms (1 per child)
- Straws (1 per child)
- Masking tape or painter's tape
- Hands-On Activity: Number Memory
- Index cards or construction paper
- Pen or marker

READ

Books



Part 3: *Estimating* by Maria Alaina
Part 4: *Round is a Mooncake* by Roseanne Thong

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Part 1: Watering the Flowers (60 minutes)

WATCH



Peg + Cat: Peg Finds Her Marble (3:10)

When Peg's marble accidentally flies into one of many identical bowls of spice, Cleopatra shows her how to use a pan balance to see which bowl contains her marble.

Gather children at your computer or interactive whiteboard so everyone can see.

Leader: Welcome to the Peg + Cat summer adventure! If you've seen Peg + Cat on TV, you know that the show is about a little girl and her cat. In every episode, they run into a REALLY BIG PROBLEM, a messy, funny crisis they must in which they must use their creativity, and help her friends to find the solution. In our summer program this week, we're going to help Peg and Cat solve their problems using what we know about math. Are you ready? Let's get started!

Access the video and watch with the children. Pause after Peg says, "How can it find my marble?" (You can pause by clicking on the video screen.) Ask the children:

- What is Peg's BIG PROBLEM? (Peg has lost her marble in a spice bowl, but she doesn't know which one because they all look exactly the same.)
- What did Cleopatra bring out to help Peg solve her problem? (A pan balance)
- Did you notice the pan balance? A pan balance is a device (tool) for weighing objects. It has a balanced beam and 2 pans. (Things to rest objects on)
- What does a pan balance measure? (Weight)
- What ideas do you have about how the pan balance can help Peg find her marble? (Answers will vary)

Leader: Let's watch the rest of the video to find out how Peg can use the pan balance to solve her REALLY BIG PROBLEM.

Continue watching, and pause again after Peg says, "Not the same!" Ask the children:

- Which bowl is the marble hiding in? (The bowl on the left.)
- How do you know? (Because it's heavier.)

Continue watching to the end with your children.

EXPLORE



Balancing Act

Children use a pan balance to measure and compare cups of dry cereal in order to find a missing toy. They will determine that the heavier bowl is hiding the toy.

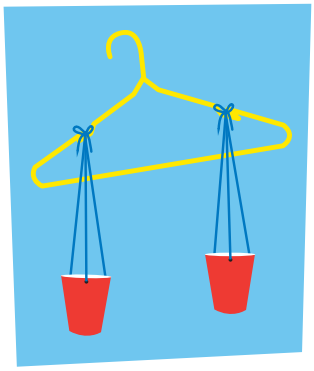
Gather children in an area appropriate for project work, and set up the materials needed for this activity.

Leader: Now that we know a little bit about how to use a pan balance, let's see if we can use it to solve a problem we have! As you can see, I have these two cups of dry cereal. When I poured them, they both had the same amount of cereal inside and they both weighed the same. But then, by accident, I dropped a toy into one of the cups. Now I need you to use the balance scale to determine which of the cups contains the missing toy. When we find it, we can play with it!

Part 1: (continued)

Allow children to place the two cups on the scale, one on each side. Ask:

- **Which cup is heavier?** (The cup that tilts lower.)
- **Which is lighter?** (The cup that tilts higher.)
- **Which cup has the toy?** (The heavier cup.)



Allow your children to look in the cup that weighed more to find and recover the toy. Then let the children play with it for a few moments—for example, if the missing toy is a ball, form a circle and play catch or "hot potato" with it.

If you don't have a pan balance in your space, you can create a makeshift balance by using string to attach two plastic cups to either side of a hanger (be sure the cups are hung at an equal length from the hanger and attached at an equal distance from the center of the hanger). Have children hold the hanger in the middle to determine which cup is heavier.

For an extra challenge, you may wish to introduce additional cups of cereal, so that the children have to weigh three or four cups to determine which one is hiding the toy. Have the children weigh the items in pairs to determine which cup makes the balance scale tip down. Once they've found it, let them play another round of catch or hot potato.

WATCH



Peg + Cat: Problem Solved (:08)

Celebrate having solved the missing toy problem by playing this short video. Be sure to encourage the children to sing along!

Leader: We are finished for today, children! We have helped Peg and Cat solve their BIG PROBLEM by using a pan balance to measure weight and find the missing toy. Let's celebrate by singing along with Peg and Cat, the Problem Solved". Next time we meet, we'll solve a different BIG PROBLEM by using another math skill—estimating.

Keep Going! If you have more time, explore the following resources on the next page.



Summer Adventure!

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Part 1: (continued)

PLAY



Peg + Cat: Happy Camel

Queen Cleopatra's camel Epidermis has lost his toys in his food. Children can help Cleo use her pan-balance by weighing different bowls to find those that have been weighted down by the hidden treasures. If you don't have a balance scale, this activity can take the place of the "Balancing Act" hands-on activity.

PLAY



Sid the Science Kid: Pan Balance

In this game, May needs help weighing rocks in her rock collection. Children will need to add and remove copper weights to get the scale perfectly balanced. As children play, encourage them to use words like "lighter," "heavier," "equal," and "balanced."



Part 2: The Bubble Party Problem (60 minutes)



PLAY

Peg + Cat: Bubble Bath

Help Peg and Cat fill the bath with water for a bubble party! Children will need to choose a container and estimate how many pours it will take to fill the tub.

Gather children at your computer or interactive whiteboard so everyone can see.

Leader: This week, we're helping Peg and Cat solve some BIG PROBLEMS by using our math skills. So far, we've helped them find a missing toy by measuring weight. Today, Peg and Cat want to throw a bubble party. The BIG PROBLEM is that they need to fill up their tub first. We're going to help them by estimating capacity.

Access the game and listen to the introduction. Explain to the children that capacity is the amount of material a container can hold. Ask the children to think about the capacities of the containers they see on the screen. Which one do they think has the greatest capacity (can hold the greatest amount of water)? Which one do they think has the least capacity (can hold the least amount of water)?

Play a few rounds as a group, asking questions like:

- Why did you choose the pitcher?
- How many pours do you estimate it will take to fill the bathtub?
- How many pours did it really take?
- If you had chosen the teacup instead of the pitcher, would you have needed more or fewer pours to fill the bathtub? Why? (More, because the teacup contains less water per pour.)

Encourage children to continue playing rounds, using vocabulary like too much, too few, more water, and less water to help them reflect on the estimates they made. As children play, emphasize that it's OK if their estimates do not match the actual number of pours needed to fill the tub. Instead, the focus should be on estimating. The more estimating games children play, the more their estimating "muscles" will grow.

EXPLORE



Fill It Up!

Children will compare different containers by investigating how much liquid they hold (capacity), estimating how many pours it takes to fill a larger container, and measuring to find out.

Gather children in an area appropriate for project work, and set up the materials needed for this activity.

Leader: Now that we've helped Peg and Cat estimate how much water they need for their bubble party, let's throw our own bubble party!

Show the children the smaller containers and have them estimate how many pours of each it might take to fill the bucket. Record their estimations on a chart. Then fill the small containers with soapy water from the pitcher and measure how many pours of each size container it actually takes to fill the bucket. Record your answers on the chart and compare. Ask questions like:

- How many pours of this container did we estimate we would need to fill the bucket?
- How many did we really need?

Part 2: (continued)

Discuss with children that a small container will take more pours to fill the bucket (because the small container has less capacity), while a larger container will need fewer pours to fill the bucket (because the large container has more capacity). By the end of this activity, children should be able to order containers by their capacity and recognize that a large container has a greater capacity than a small container.

After the bucket is filled, invite children to dip the bubble wands into the soapy water and start their own bubble party!

EXPLORE

Peg + Cat: Problem Solved (:08)

Celebrate having solved the bubble party problem by playing this short video. Be sure to encourage the children to sing along!



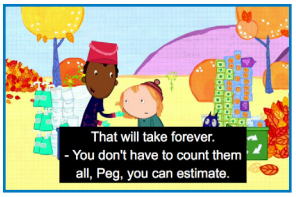
Leader: Well done, children! We've helped Peg and Cat solve their BIG PROBLEM by filling up the bucket for a bubble party.
Next time we meet, we'll solve a different BIG PROBLEM by using another math skill—describing locations.
We helped Peg and Cat solve the problem, let's close our day by singing along with Peg and Cat, "The Problem Solved".

Keep Going! If you have more time, explore the following resources:

WATCH

Peg + Cat: Peg and Cat Estimate (2:08)

Peg and Cat learn how to estimate while recycling—with a little help from Ramone.
Watch the video with children to reinforce the difference between estimating and guessing.



EXPLORE

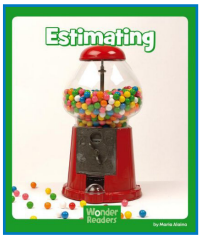
Estimating with Crayons

Encourage children to estimate capacity without using liquids. Display a large container and a pile of crayons. Ask the children how many plastic baggies full of crayons it will take to fill the container. Encourage them to use strategies like comparing the size of the baggie to the size of the container. Then try it out, and see how close children's estimates came to the final number. Try it again using a different size sandwich, quart, or gallon size plastic bag and different sized containers to practice estimating.

READ

Estimating by Maria Alaina

Read this book aloud to reinforce children's understanding of estimation.



Part 3: The Messy Room Problem (60 minutes)

EXPLORE



Peg + Cat: Missing in My Room

Peg and Cat have soooo much cool stuff. They never get tired of playing with it. The only problem is, they can never find it all! In this paper-and-pencil activity, children will help Peg and Cat keep track of their coolest stuff.

Begin by gathering the children in an area where they can stretch out and work with pencils, crayons and paper.

Leader: **This week, we're helping Peg and Cat solve some REALLY BIG PROBLEMS by using our math skills. So far, we've helped them find a missing toy and throw a bubble party. Today, Peg and Cat are trying to keep track of some stuff in their room. The BIG PROBLEM is that it's so messy, they can't find anything! Let's see if we can help.**

Hand out the worksheet and challenge the children to find the missing items. Give them a minute to work by themselves, then offer clues to help the children out. For example:

- **There are three baseballs. One is on a shelf between two bigger balls. One is on a bed post. One is hanging above the bed.**
- **The horse is on a shelf, near books.**
- **The number 7 is under a chest of drawers**

After the children have found the items, ask:

- **Was it easier when I gave you clues to help you out?**
- **How did the clues help you?**

Point out that the clues you gave contained words like on, near, between, above, and below. These are words that describe the position or location of an object.

EXPLORE



Hunting for Treasure

The ability to describe an object's position in space relative to other nearby objects is an important math skill. The classic treasure hunt is a great way to build this skill.

Gather the children together and introduce the next activity: a treasure hunt! The children are going to follow clues that will lead them to a special treasure. (You should already have written four or more of your own clues and placed them around your space. They should lead children to a spot where you've hidden a small treat or toy. See "Before You Begin" for more detail.)

Leader: **You were so good at helping Peg and Cat keep track of their stuff that I have a reward for you—a treasure hunt! I'm not going to tell you where the treasure is, though. Instead, you're going to have to follow clues that will lead you to it. I have the first clue in my hand. We're going to read it together and then follow all of the clues to find the treasure.**

Part 3: (continued)

Before handing out the first clue, tell the children that you will be doing this activity together as one group. No one should move to find the next clue until everyone agrees on what the next move is. (If you think you have too many children to do this in one group, you may break up into smaller groups and take turns with the same set of clues or devise slightly separate hunts for each group.)

Next, read the first clue and start the treasure hunt. As children read clues and search for the next ones, discuss the meaning of vocabulary words and phrases like above, beneath, under, over, and next to.

When children reach the end of the hunt, congratulate them on following the clues and finding the treasure.

WATCH



Peg + Cat: Problem Solved (:08)

Celebrate having solved the messy room problem by playing this short video. Be sure to encourage the children to sing along!

Leader: Congratulations! You helped Peg and Cat solve the messy room problem, and found a treasure of your own! Next time we meet, we'll solve a different BIG PROBLEM by using another math skill—working with shapes. Let's end our time together singing along with Peg and Cat, "The Problem Solved".

Keep Going! If you have more time, explore the following resources:

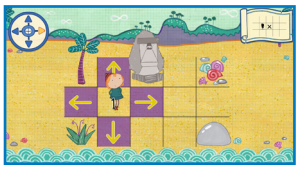
PLAY



Cat in the Hat: Deep Sea Follow Me

Head to the bottom of the Swirly Whirly Ocean with Sally, Nick, and the Cat in the Hat to help Gari Garibaldi search the coral reef for a new place to live. Children must follow directional clues such as under, over, next to, and behind to find just the right homes for Gari and his fish friends.

PLAY



Hungry Pirates

Help Peg and Cat find the buried treasure chests full of delicious snacks, counting their steps along the way. Children will use positional vocabulary to help Peg find the treasure.

EXPLORE

More Treasure Hunting

Allow children to create their own "treasure hunts" for each other. Give each child a small toy to hide, and then have him or her give the group clues with information about its location. Challenge the rest of the group to follow the clues to find the treasure.

Part 4: The Baby Fox Problem (60 minutes)

WATCH



Peg + Cat: Baby's Block Tower (1:36)

Peg and Cat are babysitting for Baby Fox. When they weren't looking, he built an enormous tower—and now he's stuck on top! Peg and Cat must build a set of stairs to get him down safely.

Gather children at your computer or interactive whiteboard so everyone can see.

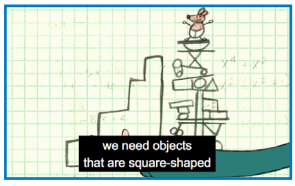
Leader: This week, we're helping Peg and Cat solve some REALLY BIG PROBLEMS by using our math skills. So far, we've helped them find a missing toy, throw a bubble party, and keep track of the things in their messy room. Today, Peg and Cat are babysitting for Baby Fox...and they're about to run into a REALLY BIG PROBLEM! Let's watch and see.

Access the first video and press play. Watch with the children. Afterwards, discuss what happened. Ask questions like:

- What is Peg and Cat's BIG PROBLEM? (Baby Fox is stuck on top of the tower and they need to get him down safely.)
- What are some ways Peg and Cat tried to solve their BIG PROBLEM? (They tried to climb the tower and blow a bubble for fox to jump up.)
- Why didn't those ideas work? (The tower was too shaky to climb; Peg's bubble burst.)
- Do you have any other ideas for how Peg and Cat get rescue Baby Fox? (Answers will vary.)

If children don't suggest it themselves, guide them towards the solution of building stairs to help rescue Baby Fox.
Tell the children that this is the solution Peg and Cat came up with.

WATCH

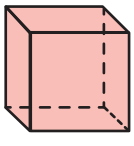


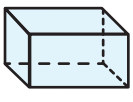
Peg + Cat: Building Steps (2:23)

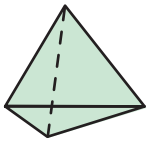
Next, access the second video and play it for the children. Afterwards, ask:

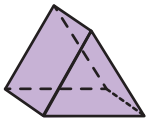
- What shapes did Peg and Cat use to build their staircase?

Children may mention squares, rectangles, and triangles. Point out that these are the names for flat shapes.
Flat shapes can be put together into solid shapes, like the ones Peg and Cat used. Draw and name the following shapes for children to see:


Cube


Rectangular Prism


Triangular Prism


Pyramid

Part 4: (continued)

EXPLORE



ZOOM: Marshmallow Tower

Children will create their own towers featuring different shapes.

Gather children in an area appropriate for project work, and set up the materials needed for this activity (marshmallows, toothpicks, paper plates, and rulers).

Leader: **Peg and Cat made a tall tower using squares and triangles to reach Baby Fox. Can you build a tower out of different shapes? Let's try it!**

Organize the children into groups of two. Then, show them the ruler with the Baby Fox cutout taped to the top. Tell the children that their challenge is to use the materials on their plates to build a tower that can reach 12 inches high—as high as Baby Fox!

Give each pair about 20 marshmallows and 20 toothpicks on a paper plate—and then let them start building! If they get stuck, encourage children to try different strategies—for example, they can start by building 2-dimensional shapes, like squares or triangles, and then connect them together to make 3-dimensional shapes.

Allow children to use additional toothpicks and marshmallows to make their tower as tall as they can. When they are done, use the ruler to measure the height of each child's tower. Give the children a round of applause for reaching as high as Baby Fox.

WATCH



Peg + Cat: Problem Solved (:08)

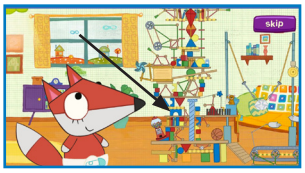
Celebrate having solved the Baby Fox problem by playing this short video. Be sure to encourage the children to sing along!

Leader: **Good effort, children! We've helped Peg and Cat solve their BIG PROBLEM by building a tower to reach Baby Fox. Next time we meet, we'll solve a different BIG PROBLEM by using another math skill—working with numbers. Let's end today by singing "Problem Solved" with Peg and Cat.**

Keep Going! **If you have more time, explore the following resources on the next page.**

Part 4: (continued)

PLAY



Peg + Cat: Baby Fox's Big Machine

Baby Fox needs help finishing his fantastic machine! In this game, children must choose blocks of the right length and orientation (horizontal or vertical) to complete the machine. Then they can start it up and see what it does!

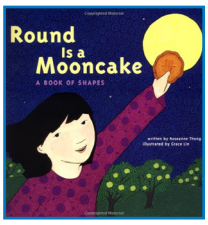
PLAY



Dinosaur Train: Buddy's Gem Hunt

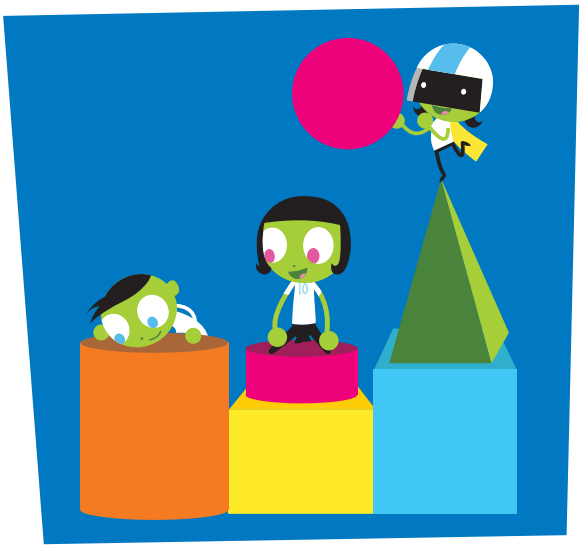
Reinforce children's knowledge of two-dimensional shapes with this game, in which Buddy the Dinosaur dives deep into a cave to collect crystals of different sizes, shapes, and colors.

READ



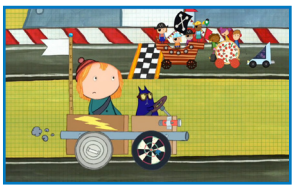
***Round is a Mooncake* by Roseanne Thong**

In this book, a young girl describes the shape of objects she comes across in her home and neighborhood, including mooncakes, dim sum boxes, and Chinese lanterns.



Part 5: The Race Car Problem (60 minutes)

WATCH



Peg + Cat: The Tallepega 20 (2:00)

Peg and Cat enter a race with a car they made themselves. Will they be able to win against the Pirates, the Teens, and Pig?

Gather children at your computer or interactive whiteboard so everyone can see.

Leader: This week, we're helping Peg and Cat solve some REALLY BIG PROBLEMS. So far, we've helped them find a missing toy, throw a bubble party, keep track of their belongings, and rescue Baby Fox. Today they have a new problem. Let's watch this video to find out more.

Access the video and press play. Watch with the children, and then ask:

- **What is Peg and Cat's BIG PROBLEM?** (They want to win the race but they only have a homemade race car.)

Leader: Let's see if we can help them win!

PLAY



Peg + Cat: Race Car

Access the game and listen to the introduction. Demonstrate for the children how to choose a car and fill it up with gas. Encourage them to count out loud as you add one or two units of gas at a time. Then, race the car! At the end of the race, children will be asked to put the racers in the order in which they crossed the finish line. Show children how to match up the character holding the numeral "4" with the fourth place podium, continuing through third, second, and first. Ask questions such as:

- **Which character is in first place?** (The character holding the "1.")
- **Which character is in fourth place?** (The character holding the "4.")
- **What do the numbers that the characters are holding tell us?** (The order in which they crossed the finish line.)

If you wish, play again as a whole group, in small groups, or individually.



Part 5: (continued)

EXPLORE

Pom Pom Race



In this activity, children will participate in their own races using only pom poms and straws. Ready, set, go!

Gather the children together in a space where they can spread out and do some racing. Be sure to mark off a starting line and a finish line on the floor with masking tape, if you haven't done so already. Pass out a pom pom and straw to each child and, in groups of three, challenge them to race their pom poms across the floor. Afterwards, discuss who came in first, second, and third. As children race, ask questions like:

- Who crossed the finish line first?
- Who came in second place?
- Who was the third person to cross the finish line?

If you have time and space, challenge all of the first-place winners to race against each other, and award the grand champion with an applause.

WATCH

Peg + Cat: Problem Solved (:08)



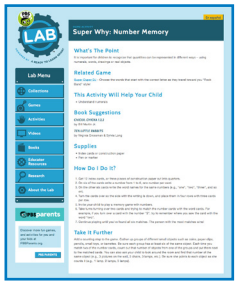
Celebrate having solved the race car problem by playing this short video. Be sure to encourage the children to sing along!

Leader: Today, we helped Peg and Cat solve another BIG PROBLEM. In fact, over the course of the week, we've helped them solve five REALLY BIG PROBLEMS: The missing toy problem, the bubble party problem, the messy room problem, the Baby Fox problem, and the race car problem. Congratulations and thank you for all your hard work! Let's finish by singing "Problem Solved" with Peg and Cat.

Keep Going! If you have more time, explore the following resources:

EXPLORE

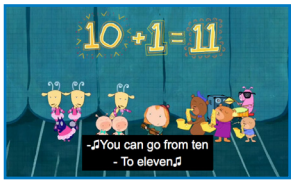
Number Memory



This game will help children correlate numerals (1, 2, 3) with ordinal numbers (1st, 2nd, 3rd). Start by writing the numerals "1" through "6" on six index cards. Then write the corresponding ordinal numbers on another six index cards. Shuffle the cards, lay them out in a grid, and play "memory" with the children, challenging them to make pairs by matching numerals with the corresponding ordinal numbers.

WATCH

Peg + Cat: Add One (2:04)



In the Race Car game, children practiced simple addition as they filled up their gas tanks. This music video, in which the Electric 11 sing their hit song Add One, reinforces what happens when you add the number one.

This out-of-school resource was developed by Maryland Public Television.
The contents of this activity were developed under a grant from the Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government. [PR/Award No. U295A100025, CFDA No. 84.295A]. • © 2015 Public Broadcasting Service.



More About Math

Peg + Cat – Big Problems

Background for Leaders

In this unit, children will join Peg and Cat as they solve some REALLY BIG PROBLEMS and practice math skills appropriate for ages 4-5 years old: using a pan balance, estimating capacity, identifying shapes, spatial reasoning, ordinal numbers and adding one or two more.

Using a Pan Balance



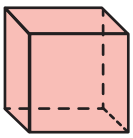
Children should be able to tell if something is heavier or lighter than another object. One way to weigh an object is to use a pan balance. When the pan balance is empty, it is parallel to the ground. If a heavy object is placed on one side of the balance, that side will move down towards the ground, showing that it is heavier, while the other side will move up into the air, showing that it is lighter. Objects must be added to or removed from each side to make the weight equal. As a result, the pan balance will be parallel to the ground. Encourage children to use vocabulary words **heavier, lighter, and balanced** to describe the objects that they are weighing.

Estimating Capacity

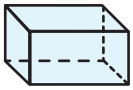
When estimating capacity children are making observations to determine how much liquid can fill a 3-dimensional object. In this unit, children will need to consider which containers hold more water and which hold less water. Children will also determine how many containers of liquid will be needed to fill a larger tub. Use vocabulary such as **too much, too few, more water, and less water** to encourage children to **estimate** accurately and reflect on the estimates that they have made. Remind children that estimating is not guessing. Instead they can make estimate based on the size of the containers and knowing that a larger container has more capacity than a smaller container.

Identifying and Combining Shapes

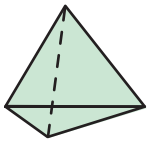
Children at this age should be familiar with both 2-dimensional and 3-dimensional shapes. Vocabulary terms children should know or be learning are: **circles, squares, triangles, rectangles, pentagons, hexagons, cubes, rectangular prisms, cylinders, and spheres.** Children should recognize shapes based on their attributes, such as numbers of sides and corners and whether the shape is two-dimensional (flat) or three-dimensional (solid).



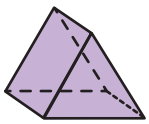
Cube



Rectangular Prism



Triangular Prism



Pyramid

(continued)

More About Math (continued)



Spatial Reasoning

Developing spatial sense in children is an essential skill that enables children to read maps or graphs and complete mazes or puzzles. These activities lay the foundations for more advanced geometry and spatial reasoning skills. It is essential that children use and develop spatial sense in conjunction with the proper vocabulary. Children should be able to determine the relative position of an object in a picture when given 1-2 directional clues. Position and direction vocabulary includes words and phrases such as: **above, under, on, next to, on top of, near, and between.** For example the square is **next to** the bed and **on top of** the table.



Children will use spatial sense when choosing the right sized object and orientation to solve a puzzle. In **Baby Fox's Big Machine,** children will choose rectangles that are the right length and orientation (horizontal – left to right or vertical – up and down).

Adding One or Two More

Children at this age are learning to count by ones up to 30 and by twos up to 20. Adding one more to an existing number is similar to counting "one more". In the same way adding two more to an existing number is like counting by twos. This skill can be a challenge for some children so they can use objects or a number line and skip every other number to show counting by two (or adding two repeatedly).

Ordinal Numbers

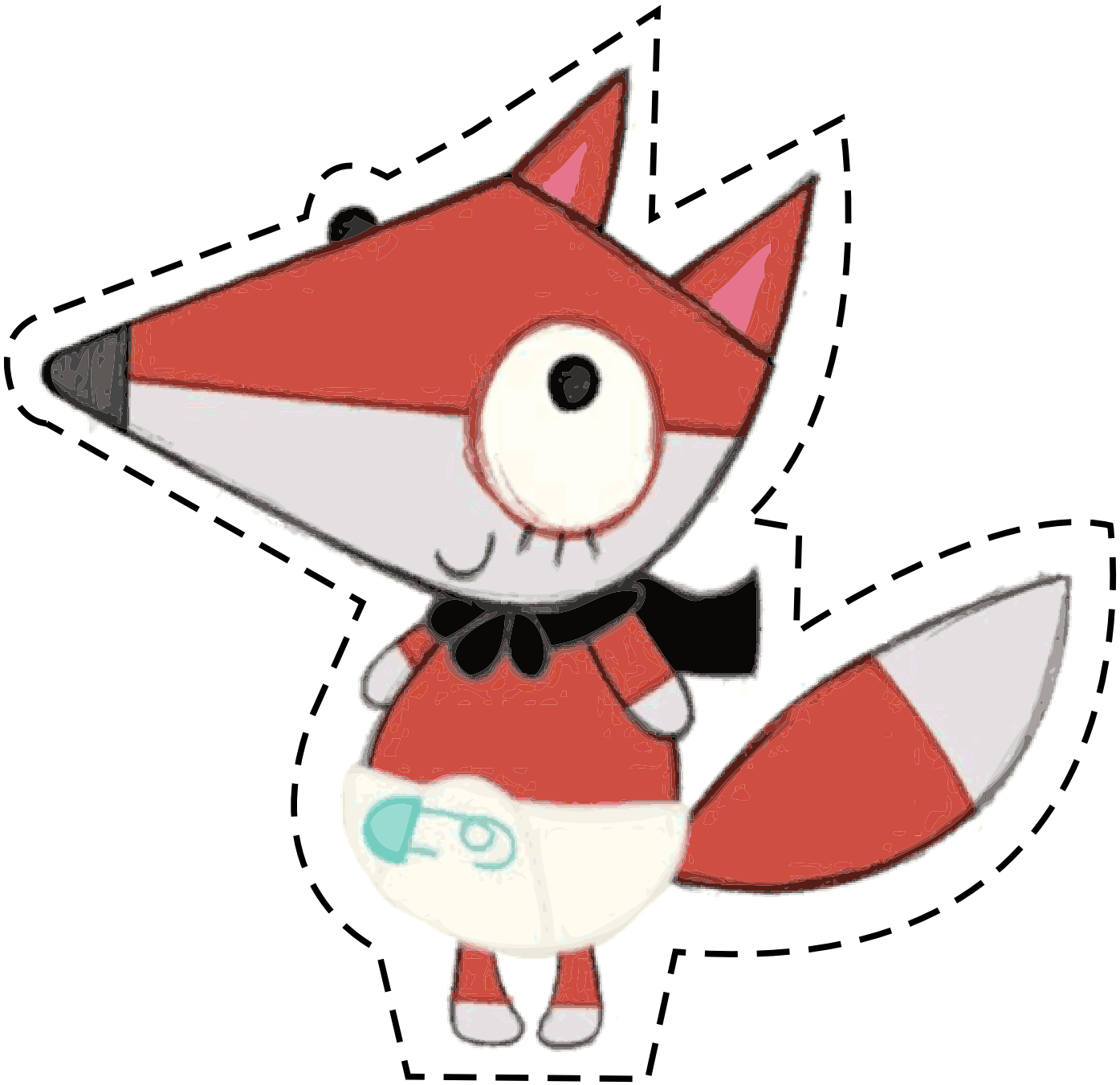


Children at this age are familiar with number and numeral correspondence. Throughout the **Race Car Problem** children are asked to put people, objects, and cars in order: 1st, 2nd, 3rd, 4th, and so on. This may be an introduction to ordinal numbers. Show children how to match the person holding the number four with the 4th place. Continue this with third, second, and first, and then play again! Children can practice this concept by discussing placement in line (who is first in line? Who is last in line? Who is third in line?).

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PBS KIDS Summer Adventure!



peg+cat

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MISSING IN MY ROOM!

Cat and I have soooo much cool stuff. We never get tired of playing with it.

The only problem is, we can never find it all!

Help Cat and me keep track of some of our coolest stuff. Help us find:

- 1 stegosaurus!
- 4 pyramids!
- 1 horse!
- 3 baseballs!
- 1 number 5!
- 4 crayons!
- 1 number 7!

As you find things, number them so we can find them easily.

Then color in Cat and me relaxing in my room.

PARENTS:

CLUES YOU CAN USE to help kids find...

- 1 stegosaurus - It's **next to** 2 other dinosaurs.
- 4 pyramids - 2 are **on** a shelf, 1 is hanging **above** the bed, and 1 is **on** the floor **near** a cube and a cylinder.
- 1 horse - It's **on** a shelf, **near** books.
- 3 baseballs - 1 is **on** a shelf **between** two bigger balls, 1 is **on** a bed post, 1 is hanging **above** the bed.
- 1 number 5 - It's part of a lamp.
- 4 crayons - Cat's using 1, 2 are on a rug, 1 is **on** a table.
- 1 number 7 - It's **under** a chest of drawers!

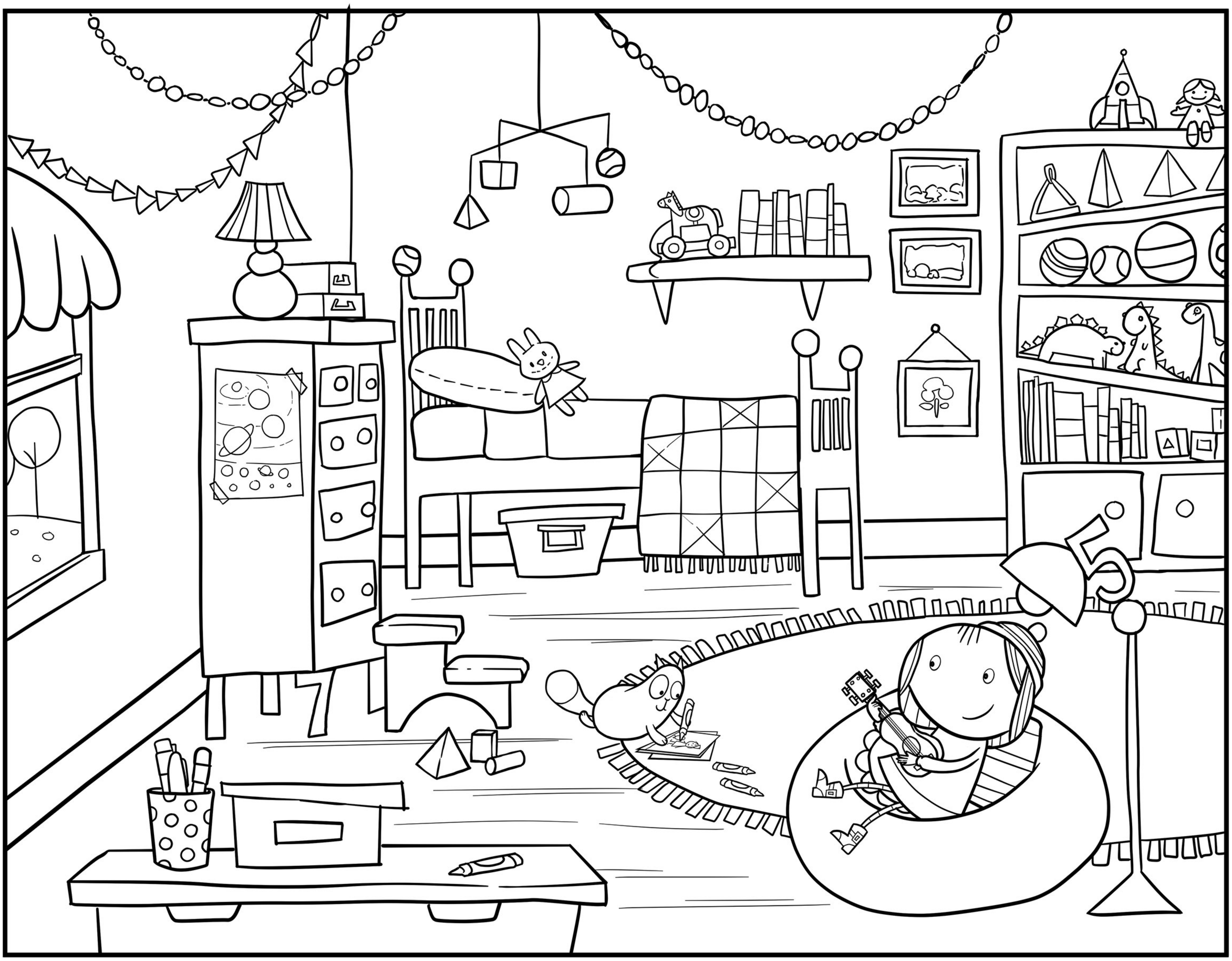
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1 Stegosaurus

4 Pyramids

1 Horse

3 Baseballs

1 Five

4 Crayons

1 Seven

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