



# AT-HOME SUMMER GUIDE

## for **SCHOOL-AGE** (Kindergarten–6th Grade)

Week of August 24, 2020

Welcome to week one of the  
Champions learning guides for  
**Circus Science!**



You'll learn the balance and focal skills that allow trapeze artists to walk across tightropes and how jugglers mesmerize audiences by juggling items with ease. At the end of the week you'll be able to put on a show for your family and friends.

This week's activities will go behind the scenes of popular circus acts and explore how shows are made possible through science and a lot of practice. These activities improve balancing, engineering skills, problem-solving, and creative thinking through hands-on practice.

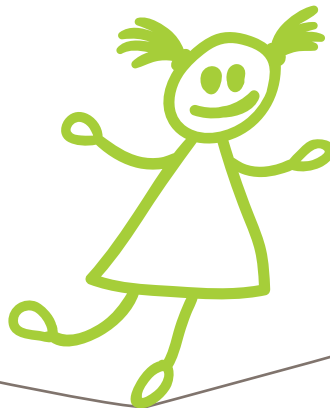
### FAMILIES WITH KINDERGARTENERS:

Our summer school-age guide incorporates **first grade readiness activities** to keep your kindergartener's mind sharp through the summer!



This Week's Theme:

# Finding Your Balance



## CIRCUS SCIENCE

### [Balancing Act](#)

Explore the physics behind the amazing sights created by balancing objects or people.

### [Creative Writing through Tightrope Walking](#)

Use your imagination to write about being a tightrope walker.

### [Science of Tightrope Walking](#)

Explore your ability to balance with this intro to tightrope walking!

### [Basic Juggling](#)

Learn to juggle with these basic skills as you practice hand-eye coordination.

### [Balance Challenges and Games](#)

Display your new balancing and juggling skills for family and friends.

## PREVENTING LEARNING LOSS

### [Cup Challenge](#)

Use your balancing and engineering skills from the previous activities to create a tall tower by balancing various objects.

### [Newspaper Challenge](#)

Use your engineering skills to create a newspaper structure to balance objects on.

## FIRST GRADE READINESS

### [Phonics Activity: Silent E Word Ladders](#)

Your child will transform one word into another with the change of a letter in this game about words that end with the letter e.

### [Math Activity: Filling in the Gaps](#)

This week's math activity explores measurement, subtraction, and comparison—all using your child's own hands and feet!

# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Getting Ready for the Week: Materials to Gather

#### For Circus Science Activities:

- ❑ Beanbags, juggling balls, or palm sized lightweight soft toys of similar size (3)
- ❑ Fork
- ❑ Hardcover book, large
- ❑ Masking tape
- ❑ Paper
- ❑ Pencil with an eraser and sharpened
- ❑ Rope or jump rope
- ❑ Rubber ball, small
- ❑ Spoon
- ❑ Stopwatch (optional)
- ❑ Writing and drawing tools
- ❑ Yardstick

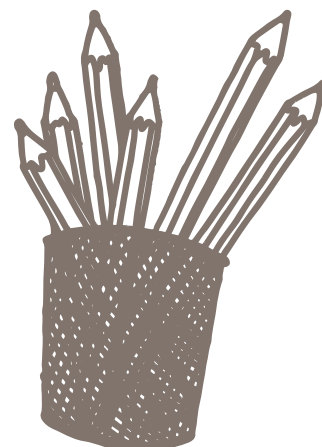
#### For Preventing Learning Loss Activities:

- ❑ Craft sticks, large (up to 100)
- ❑ Plastic cups (up to 100)
- ❑ Small craft sticks
- ❑ Small stuffed animal
- ❑ Ruler
- ❑ Book
- ❑ Glue

#### For First Grade Readiness:

- ❑ Paper
- ❑ Pencil
- ❑ 2 sheets of paper
- ❑ A set of small objects that are about the same size, to use as measuring objects (see activity instructions for more details)
- ❑ Tracing instrument, like pencil or marker

**Tip:** At the beginning of your week, gather materials and place them in a container so you're ready to go!



# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Circus Science: Balancing Act

Explore the physics behind the amazing sights created by balancing objects or people.

**Length of activity:**  
15 minutes



**Level of Engagement  
Required by Adult:** Low



**Level of Prep Required:** Low



**What you need:**

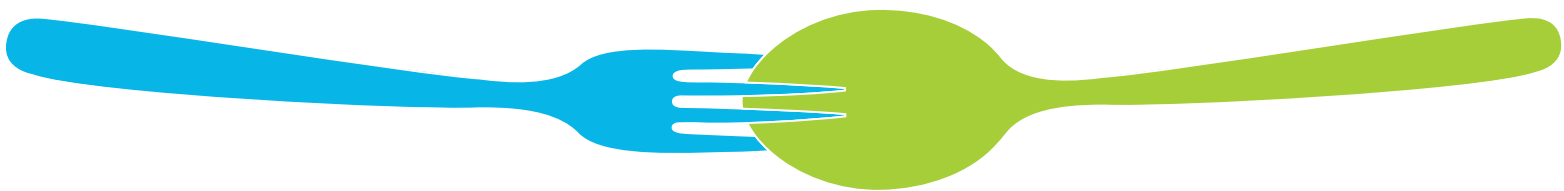
- Fork
- Sharpened pencil with an eraser
- Spoon

#### What you will do:

Many circus acts focus on balance to create amazing acts. Balance is an equal distribution of weight so when a person's weight is spread out equally, or balanced, the person is able to remain upright and stable. What circus acts can you think of that involve balancing skills?

Now it's your turn to practice. Try to stand on one leg. Why do you think it is hard to stand on only one leg? A specific force (a push or pull that changes the movement or shape of something) is at work and makes it difficult to maintain balance. This invisible force is called gravity, and it pulls everything toward the center of Earth. One way to maintain balance is to stare at a single point, also known as a focal point. Try balancing on one foot again, but this time, stare at a single point in front of you. Was it easier to maintain your balance this time?

Next, try to balance a spoon, fork, and pencil at the same time. How might you balance the three items together? Try sliding the spoon through the fork's tines, as shown in the illustration below.



Then, try to balance the attached fork and spoon on the sharpened point of the pencil then on the pencil's eraser. Why do you think it is easier to balance the fork and spoon on the eraser? It is easier because the eraser provides a larger base of support than the point of the pencil.

The point where the fork and spoon were able to balance is called the *balancing point*, or center of gravity, which is the point where an object or person's weight is most affected by gravity. Where do you think the center of gravity is in your own body? A person's center of gravity is usually slightly higher than his or waist. Just like the eraser, your feet provide a base of support. People can balance more easily when they keep their center of gravity above their base of support, or their feet.

# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Circus Science: Creative Writing through Tightrope Walking

Use your imagination to write about being a tightrope walker.

**Length of activity:**  
15 minutes



**Level of Engagement  
Required by Adult:** Low



**Level of Prep Required:** Low



**What you need:**

- Paper
- Writing and drawing tools

#### What you will do:

Have you ever seen tightrope walkers perform? Have **you** ever walked on a tightrope?

Read the following questions then close your eyes and envision yourself as a tightrope walker. Envision being high up in the sky, gracefully balancing on the tightrope. Is there a crowd watching and cheering you on or is it nice and quiet so you can concentrate? Do you have a special costume or stage name?

Now open your eyes and draw a picture of yourself on a tightrope. Next, write about how you might feel while walking on a tightrope. What might you see from such high heights? How would you keep your balance on the thin rope? What emotions would you feel while walking on the tightrope? How would you feel after you finished?

If you've never been to a circus or witnessed a tightrope walker, ask an adult family member to help you find a picture or a video to use as a reference.



# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Circus Science: Science of Tightrope Walking

Explore your ability to balance with this intro to tightrope walking!

**Length of activity:**  
20 minutes



**Level of Engagement  
Required by Adult:** Low



**Level of Prep Required:** Low



**What you need:**

- Masking tape
- Rope or jump rope
- Yardstick

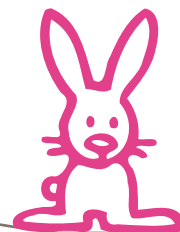
#### What you will do:

Tightrope walkers start learning their skills by finding their center of balance using low or ground level ropes. Now it's your turn to learn about the science behind tightrope walking. Do you have any experiences walking on balance beams? How is walking on a balance beam similar to, and different from, walking on a tightrope?

Start your training by having a family member hold a rope or jump rope loosely in their hands and use your fingers to push the rope down, then ask your family member to pull the rope tight and use your fingers to push down on it. What differences and similarities do you notice between the two ropes? Did you notice that when the rope was held loosely, it swings back and forth? And did you notice that when the rope was held taut, it does not swing but instead vibrates? Tightrope walkers need their rope to have just the right amount of tension so that it is loose enough that it won't vibrate too much, but tight enough that it will not swing back and forth.

Stretch your rope out on the grass and place the yardstick beside the rope. Walk the length of the rope, trying different techniques to help maintain your balance. Next, pick up and hold the yardstick out in front of you for balance while you walk. Did this help you keep your balance? Now place the yardstick back on the ground and try to walk while holding your arms out to your sides.

Which method of walking the ropes were you most successful with? Holding out your arms or the yardstick lowered your center of gravity and should make balancing easier. Imagine a long, drooping pole with weights on each end. Would carrying this pole make balancing easier or harder? Tightrope walkers use this kind of pole because it lowers their center of gravity, making balancing much easier.



# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Circus Science: Basic Juggling

Learn to juggle with these basic skills as you practice hand-eye coordination.

**Length of activity:**  
30 minutes



**Level of Engagement  
Required by Adult:** Low



**Level of Prep Required:** Low



**What you need:**

- Beanbags, juggling balls, or palm sized lightweight soft toys of similar size (3)

**What you will do:**

Learning how to juggle is a skill that can take a long time to master but learning it one step at a time can help you make quick progress.

First, toss one ball back and forth between your hands to get the feel of the ball and its movement. Now, throw the ball up in the air about eye-level or higher, then catch the ball with the same hand. Practice doing this with both hands. Try not to move your throwing and catching hand very much and keep your eyes on the ball's highest point and not on your hands. All juggling throws should be slow and steady. For the best results, keep your knees slightly bent and stay relaxed while throwing from your elbow, not from your shoulder or wrist. Visualize yourself catching the ball. Continue practicing, taking turns with each hand.

After you've mastered throwing and catching with the same hand, try to throw one ball from one hand to the other, keeping the ball's highest point at about eye-level. Next, you're going to try throwing two balls. Begin by holding one ball in each hand. You should first throw one ball up into the air, from the right hand to left one, again keeping the highest point at eye level. After catching the first ball in your left hand (in which you now hold two balls), throw the second ball from your left hand back to the right one. Take plenty of time to practice this and remember this isn't easy, so don't be hard on yourself if it takes a while.

After you've practiced tossing one ball at a time and feel comfortable, begin juggling two balls at once. Toss one ball from the right hand up in an arc toward the other hand, and just as it reaches the highest point of the arc, throw the ball in your left hand under the first ball and toward the right hand. If all goes as planned, you should catch the first ball thrown in your left hand and the second ball in the right hand. Take plenty of time to practice and again, remember this step takes time to learn. If you are able to master juggling two balls, you've managed the important first step to learning how to juggle two balls.

# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Circus Science: Balance Challenges and Games

Display your new balancing and juggling skills for family and friends.

**Length of activity:**  
30 minutes



**Level of Engagement  
Required by Adult:** Low



**Level of Prep Required:** Low



#### What you need:

- ❑ Beanbags, juggling balls, or palm sized lightweight soft toys of similar size (3)
- ❑ Hardcover book, large
- ❑ Rope or jump rope
- ❑ Rubber ball, small
- ❑ Stopwatch (optional)
- ❑ Yardstick

#### What you will do:

Put your skills to the test as you show your family and friends all the things you've learn this week. Remember that finding a focal point and knowing where your center of gravity is can help you maintain your balance. As you walk across the ropes, place one foot directly in front of the other, heel to toe, with your arms stretched out to your sides.

After you've walked along your rope, use additional balance challenges to increase the difficulty of your balancing act. You may wish to hold a yardstick for balance or just hold your arms out to your sides while trying some of these challenges:

- ❑ Walk as fast as possible along the rope. You may want to time yourself to try to improve your speed.
- ❑ Walk backward along the rope.
- ❑ Walk sideways along the rope by crossing one leg behind the other leg, taking a step, and then crossing the back leg over the front leg.
- ❑ Hold a large book while walking along the rope.
- ❑ Hold a large book with a small ball on top of it while walking along the rope.
- ❑ If you feel comfortable with juggling, you can try walking along the rope while juggling.

**CAUTION!** Ensure proper footwear is always worn when walking on a rope. Flip-flops, open-toe or any kind of sandal should not be worn for this activity.



# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Preventing Learning Loss: Cup Challenge

Use your balancing and engineering skills from the previous activities to create a tall tower by balancing various objects.

**Length of activity:**  
20 minutes



**Level of Engagement  
Required by Adult:** Low



**Level of Prep Required:** Low

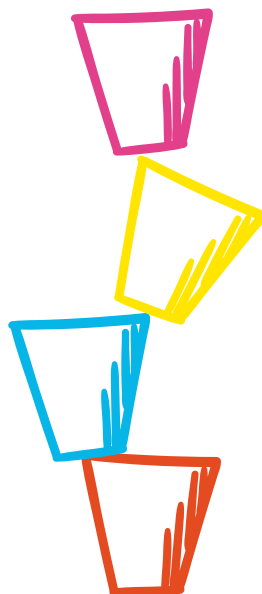


**What you need:**

- Large craft sticks (up to 100)
- Plastic cups (up to 100)

#### What you will do:

- First try to build a structure using all of the cups. How many craft sticks can you balance on the top of your structure?
- Next, build a structure that is wider on the top than on the bottom. How many craft sticks can you balance on this structure? Is it more or less than your first structure?
- Last, build the tallest structure you can using the cups and craft sticks. How does this structure differ from the first two? Is it more or less stable?



# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Preventing Learning Loss: Newspaper Challenge

Use your engineering skills to create a newspaper structure to balance objects on.

#### Length of activity:

30 minutes



**Level of Engagement**  
Required by Adult: Medium



**Level of Prep Required:** Medium



#### What you need:

- Craft stick
- Small stuffed animal
- Book
- Glue
- Ruler

#### What you will do:

- First, use newspaper to build a structure that will hold a craft stick 12 inches off the ground. Try to fold or stack the newspaper, then use glue for stability.
- Now try adding a stuffed animal to the structure. If it holds up, move on to the next item. If it does not hold up, rebuild your structure until it can hold a stuffed animal 12 inches off the ground.
- Now try adding a book. If it holds up, try seeing what other small items you can add and balance on the structure. If it does not hold up, rebuild your structure until it can hold the book 12 inches off the ground.

# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### First Grade Readiness

Our summer school age guide incorporates **first grade readiness activities** to keep your kindergartener's mind sharp through the summer.

### Phonics Activity: Silent *E* Word Ladders

Your child will transform one word into another with the change of a letter in this game about words that end with the letter *e*.

**Length of activity:**  
15–20 minutes



**Level of Engagement  
Required by Adult:** High



**Level of Prep Required:** N/A



**What you need:**

- Paper
- Pencil

#### What your child is learning:

- How to read words that end in a silent *e*
- How to find patterns between different words using phonics

#### What you will do:

First, review the idea of silent *e* with your child. To do this, write the words *cap* and *bit* on a piece of paper. Ask your child to read the words. Then explain that we can add a silent *e* to the ends of these words, and they change how we read the words. When we add a silent *e* to the end of the word, it makes the vowel say its name. For example, the short /ah/ in *cap* becomes the long /ay/ in *cape*—just like the name of the letter *a*!

Add an *e* to the end of the word *cap*. Draw an arrow from the *e* to the *a* and say c-a-a-a-pe, drawing out the long *a* sound. Repeat the process with the word *bit* to turn it into the word *bite*. If your child needs more practice, you can repeat the process with other words like *mad*, *rid*, *pin*, and *hop*.

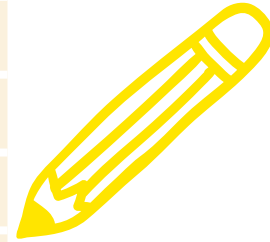
Once your child is comfortable with reading silent *es*, invite them to play a word game with you. Take a piece of paper and write lowercase vowels across the top of the paper: *a*, *e*, *i*, *o*, *u*. Write the word *tame* under the vowels. Next to *tame*, write *t\_me*. Ask your child to read the word *tame*. Then, invite them to see if they can write a different vowel in the blank to make a different word. For example, your child could write an *i* in the blank to make the word *time*.

# At-Home Summer Guide for School-Age

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Continue to play the game using the list below.

<b>pole</b>	<b>p__le</b>
<b>mule</b>	<b>m__le</b>
<b>like</b>	<b>l__ke</b>
<b>cone</b>	<b>c__ne</b>
<b>pane</b>	<b>p__ne</b>
<b>bike</b>	<b>b__ke</b>
<b>role</b>	<b>r__le</b>
<b>wide</b>	<b>w__de</b>



**If your child is ready:** To make this a more challenging and longer word ladder game, invite your child to switch out the consonants too. For example, if your child fills in the *p\_\_le* blank with the letter *i*, you could then write a pair of words challenging them to turn *pile* into a new word by filling in a new third letter:

pole     p\_i\_le  
pile     pi\_n\_e  
pine     \_n\_ine

# At-Home Summer Guide for School-Age

## Week of August 24, 2020

### Math Activity: Filling in the Gaps

This week's math activity explores measurement, subtraction, and comparison—all using your child's own hands and feet!

**Length of activity:**  
10–15 minutes



**Level of Engagement  
Required by Adult:** Medium



**Level of Prep Required:** Low



#### What you need:

- 2 sheets of paper
- A set of small objects that are all about the same size, to use as measuring objects (see activity instructions for more details)
- Tracing instrument, like pencil or marker

#### What your child is learning:

- How to measure area using non-standard measurements
- How to use measurements to compare size
- To practice subtraction

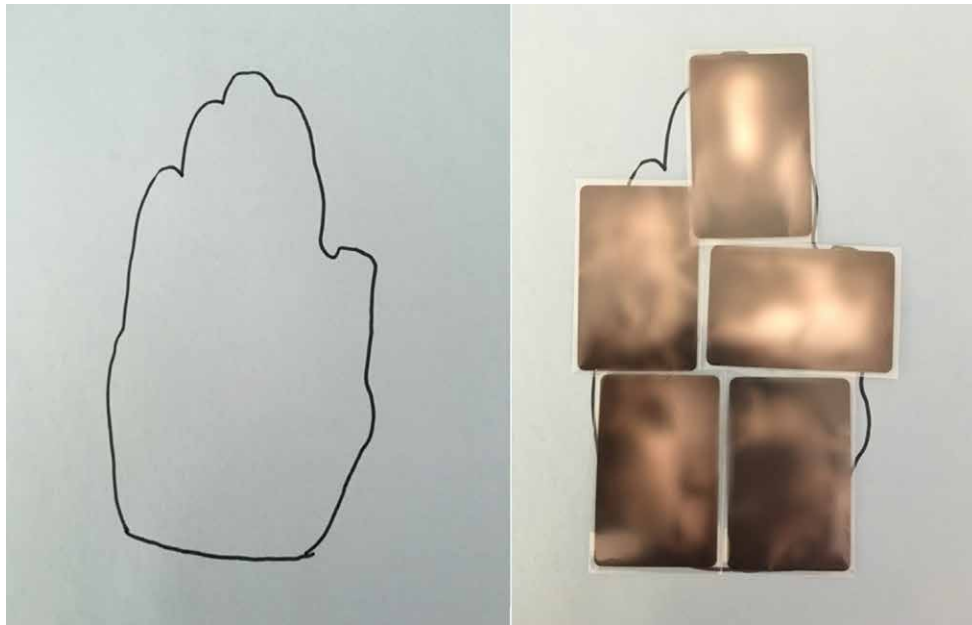
#### What you will do:

Place a sheet of paper on the ground and ask your child to put their foot on the paper. Invite them to use a pencil or marker to trace around the outside of their foot. Then, take a separate sheet of paper and place it on a table. Ask your child to put their non-dominant hand on the piece of paper, with their fingers together. Invite them to trace around the outside of their hand. They will have two sheets of paper, one with the outline of their foot and one with the outline of their hand.

Next, invite them to use the measuring objects to fill in the space inside each outline. See the [example](#) on the next page to see what this looks like— it doesn't have to be perfect! In the example, the outline of a hand is filled in with game cards. But you can use anything you have on hand, like brick toys, small leaves or stones, or you can cut squares out of a sheet of paper. Ask your child to count the number of measuring objects that fit in their hand print and the number that fit in their footprint. Which outline fits more? How many more measuring objects fit in the bigger outline?

# At-Home Summer Guide for School-Age

## Week of August 24, 2020



**If your child is ready:** For more of a challenge, record how many measuring objects fit into the outline. Then, pick a new type of measuring object that is differently sized! For example, you might use sugar packets for your first measurement and dried raisins for your second measurement. Count the new measurement. Did more or fewer of the new object fit into the space? Talk about why there is a difference when measuring with different objects.

If your child is interested, you could also use this method to determine which family members have the biggest feet and hands. Use subtraction to see how much bigger a parent's hands are than a child's hands.