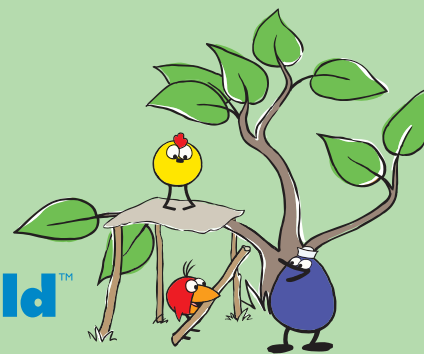


PEEP and the Big Wide World™



Exploring Structures

This hands-on event will help children explore the following science concepts:

- **How you design and build a structure helps determine how strong it will be.**
- **Different materials are useful for making different kinds of structures and different parts of structures.**
- **Walls, roofs, and bridges need to be supported in special ways.**

Materials

- *Peep and the Big Wide World* episode, “Chirp Builds a Nest”

Introduce

Show the *Peep* episode “Chirp Builds a Nest” and the live-action video that follows it (11 minutes). “Chirp Builds a Nest” is on the DVD *Peep Figures It Out*. (Go to shop.wgbh.org and type **Peep DVD** in the search box.) As the children watch, you may want to ask a few questions that focus on the science concepts. For example: *What problems do Peep and Chirp have with the sticks? What do they do to solve the problem?*

Explore

Set up the three activities in distinct areas of a room. Children can rotate through the activities. (The hope is that most children will spend at least 10 minutes at an activity. It’s fine if some choose to spend more time.) For each activity, have a volunteer introduce the materials, then allow children to freely decide how to design and build their structures. Observe the children at work, notice what captures their curiosity, and keep the explorations going by asking them to talk about what they are doing and by posing open-ended questions.

Materials

- plastic or paper cups
- pieces of flat cardboard or poster board

Activity 1: Make a Cup Tower

This activity can be set up on a tabletop or on the floor. Provide cups and cardboard. Ask: *How do you think you could use these materials to build a tower?* As children experiment, ask questions to keep the explorations going:

- *Can you make a tower as tall as you are? Even taller?*
- *What would happen if you removed some of the cups?*

Children can try these “stability tests” to see how strong their towers are:

Fan a piece of cardboard at the tower to create a big wind.

Hop up and down next to the tower.

Put a weight on the top (like a book or piece of wood).



Materials

- stuffed animals
- building materials (flattened cardboard boxes, small pieces of wood, paper towel rolls, tin foil, etc.)
- masking or duct tape

Activity 2: Build a Home for a Toy

This activity works best on a carpeted floor where the materials can be spread out and children are comfortable on their hands and knees. Cut lengths of tape and stick to tabletops or chairs for children to grab while they're building. Introduce the activity by asking: *How could you use these materials to build a home for one of these animals?*

As they build, invite children to share their discoveries with the group.

- *Can you show us how you bent the cardboard to help it stand?*
- *Tell us how you made the door open and shut!*

Let children take their buildings home with them, if feasible, or create a display for visitors to enjoy.



Photo: Gay Mohrbacher

Materials

- pairs of boxes or stacks of blocks about 5" tall
- stiff paper (manila folders) cut into 18" strips, about 2" wide
- to support the bridge: toilet paper tubes, paper cups, blocks, craft sticks, clay, etc.
- blue construction paper
- a small toy car for each child
- picture book of bridges (such as *Bridges Are to Cross* by Philemon Sturges)

Activity 3: Design a Bridge

Set up work stations on a table or on the floor. For each station, put two boxes about 15" apart and place a piece of blue paper in between. (The paper represents the river and the boxes serve as the ends of the bridge.) Provide toy cars, paper strips (to serve as the bridge roadway), and materials that children can use to support their bridges (see Materials list).

You may want to introduce the activity by asking: *Why do people build bridges? What do bridges you've seen look like? What keeps them from falling down?* A few pictures of bridges can help prompt discussion.

Point out the "river" and the boxes at each work station and present the challenge:

- *Try to build a bridge across the river that is strong enough for a toy car to drive over.*

As children build, ask open-ended questions to keep the explorations going:

- *How are you keeping your bridge from falling down?*
- *What do you think you would need to do to build an even longer bridge?*



Photo: Ely Schrottman

Wrap Up

Bring the children together for a few minutes to enjoy a snack and reflect on their building experiences. Ask questions such as:

- *What did you do to make your tower stand up and not fall down?*
- *What did you discover while you were building your bridge?*
- *What other kinds of structures do you think you could build with these materials?*

Distribute the Event Evaluation Form and Family Handouts (*Explore Structures with Your Child* and *Exploring Science with Kids*) to parents and caregivers. Draw attention to other resources such as a display of structure-related books, a related exhibit at a local museum, or a neighborhood construction project where it is safe to watch the builders.



Explore Structures!

Join us for hands-on science fun. Build towers and bridges!

Who?

Kids ages 3–5 and their families and caregivers

When?

Where?

It's free!

PEEP and the
Big Wide World™

Hatching new scientists every day!



Watch *Peep and the Big Wide World* weekday mornings during Ready Set Learn! on TLC and the Discovery Kids Channel.

Go to peepandthebigwideworld.org for more science games and activities.



PEEP and the Big Wide World™

Explore Structures with Your Child

Houses

Build an instant playhouse. Gather materials such as stiff cushions from the couch, bed sheets, cardboard, and kitchen chairs. Encourage your child to come up with creative building solutions: *How do you think we can make the cushions stand up? What can we use as a roof? How are you going to get in?*

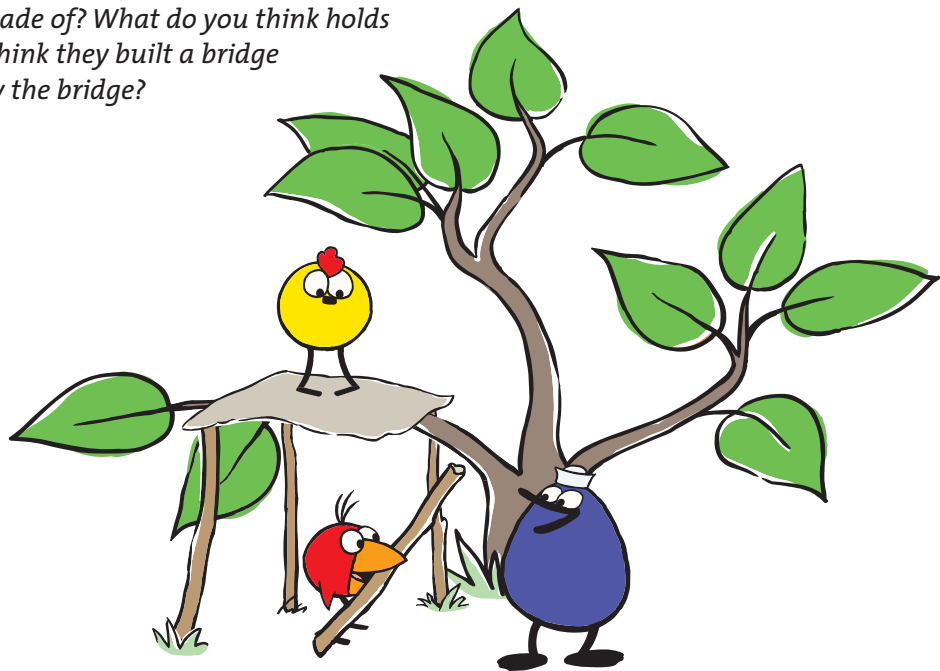
Visit a construction site. Talk about what you see: *What do you think they are building? How can you tell? How do you think those posts stand up?* Point out the different jobs being done and the equipment being used. *What materials are the builders using? Why do you think they need that crane?* Go back often so your child can watch the building grow.

Bridges

Build bridges for toy cars using rulers, cardboard, blocks, and other materials. As a challenge, invite your child to build a bridge over a full sink or a small pan of water.

Find a puddle, small stream or run-off from a sprinkler. Encourage your child to build bridges from sticks, rocks, and other natural materials. Ask your child: *What is holding your bridge up? How could we make the bridge longer? How could we make it higher? What else could we use to make a bridge?*

Look for different kinds of bridges as you ride or walk. Ask: *What do you think this bridge is made of? What do you think holds the bridge up? Why do you think they built a bridge here? What do you see below the bridge?*



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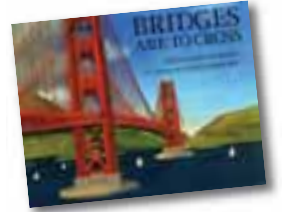
Learn More about Structures

Read and Find Out!

Visit your library and look for these books. Ask your librarian for additional recommendations.

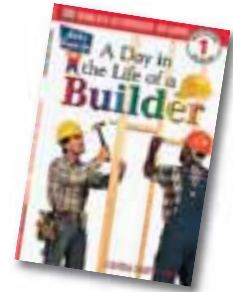
Bridges Are to Cross by Philemon Sturges Putnam, 1998

The intricate cut-paper illustrations show a variety of bridges, providing lots to look at and wonder about.



A Day in the Life of a Builder by Linda Hayward Dorling Kindersley, 2001

Follow construction worker Jack through a busy workday—from making early-morning phone calls, to keeping dogs from ruining the wet cement, to presenting a finished house to a family.



The Three Little Javelinas by Susan Lowell Rising Moon Books, 1992

In this Southwestern version of the “Three Little Pigs,” three young javelinas build their houses from tumbleweeds, saguaro ribs, and solid adobe brick.



Click and Explore!

Block Builder: An online game readyssetlearn.com

Enter the site. Click on the picture of the **toy box**, then select **Block Builder**.
Use blocks to build a rocket, a castle, a sailboat, and much more.

Paper Tower: A family science activity pbskids.org/zoom/printables

Click on **Activity Pages**. Under **Structures**, click on **Paper Tower**.

What’s the tallest tower you can build with just two sheets of newspaper? This is an interesting challenge for you and your child to try together.



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PEEP and the Big Wide World™

Explore las estructuras con el niño

Casas

Construyan una casa de juguete. Recojan materiales, tales como cojines del sofá, sábanas, cartón y sillas de espaldar recto. Sugíerale al niño que piense en soluciones creativas para la construcción: *¿Qué crees que debemos hacer para que los cojines queden parados? ¿Qué podemos usar para hacer el tejado? ¿Cómo lograremos que el tejado no se caiga? ¿Cuál va a ser la entrada de la casa?*

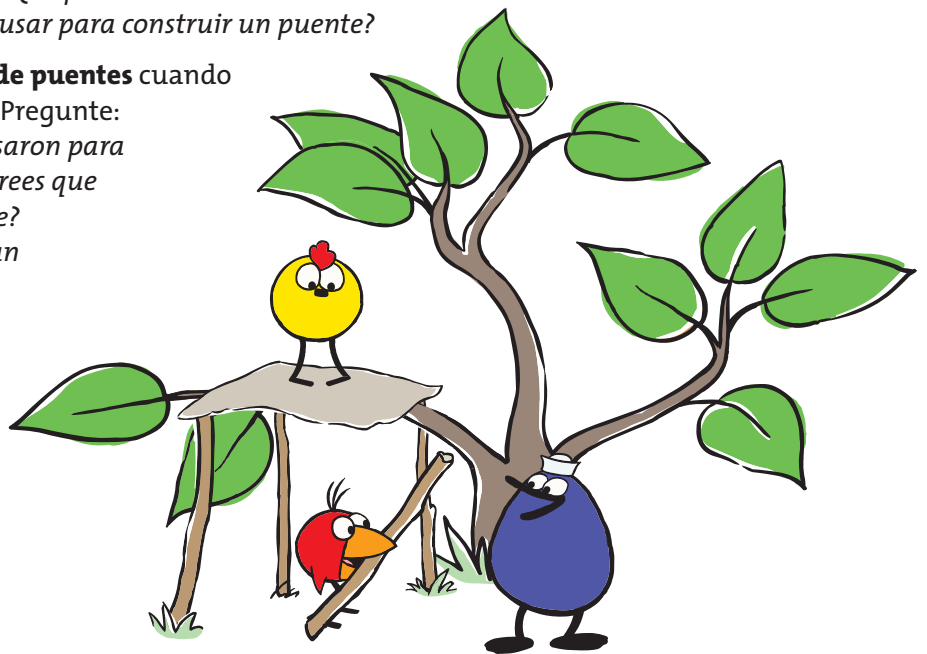
Visiten una construcción. Hablen sobre lo que ven: *¿Qué crees que están construyendo? ¿Cómo lo sabes? ¿Qué crees que hacen para que esos postes no se caigan?* Señale las diversas labores que se están realizando y los equipos que están usando. *¿Qué materiales están usando los constructores? ¿Por qué crees que necesitan esa grúa?* Regresen a menudo para que el niño pueda ver cómo avanza la construcción.

Puentes

Construyan puentes para carritos de juguete Usen reglas, cartón, bloques y otros materiales. Pónganse un reto: invite al niño a construir un puente que atraviese el lavamanos o una pequeña olla con agua.

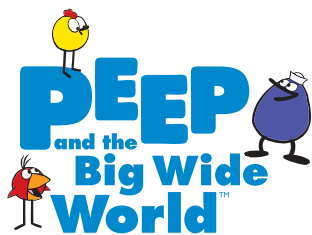
Encuentren un charco o una pequeña corriente de agua de un rociador o regadera del pasto. Pídale al niño que construya puentes usando palos, piedras y otros materiales naturales. Pregúntele al niño: *¿Cómo se mantiene elevado el puente? ¿Qué podríamos hacer para alargar el puente? ¿Lo podremos elevar más todavía? ¿Qué otras cosas podríamos usar para construir un puente?*

Busquen diferentes estilos de puentes cuando salgan en auto o a caminar. Pregunte: *¿Qué materiales crees que usaron para construir ese puente? ¿Qué crees que mantiene elevado ese puente? ¿Por qué crees que hicieron un puente ahí? ¿Qué ves debajo del puente?*



Vean Peep and the Big Wide World las mañanas entre semana durante Ready Set Learn! en los canales TLC y Discovery Kids.

En peepandthebigwideworld.org verán más actividades y juegos científicos.



Aprendamos más sobre las estructuras

Leer y descubrir

Acudan a la biblioteca y busquen estos libros. Pídanle a la bibliotecaria que les recomiende otros libros.

Changes, Changes de Pat Hutchins **Aladdin, 1987**

En este cuento ilustrado y sin palabras, dos muñecas de madera usan bloques para construir su casa. Cuando esta se incendia, usan bloques para construir un camión de bomberos para apagar el fuego.



Quiero ser constructor de Dan Liebman **Firefly Books, 2003**

A los constructores les gusta armar cosas. Con sus fotografías, este libro nos lleva a una construcción donde podemos ver a los obreros trabajando.



Los tres pequeños jabalíes de Susan Lowell **Rising Moon Books, 2004**

En esta versión de "Los tres cerditos" proveniente del sudoeste norteamericano, tres jabalíes usan plantas rodadoras, ramas de saguaro y ladrillos de adobe para construir su casa.



Hagan clic y exploren

Block Builder: Juego en Internet readyssetlearn.com

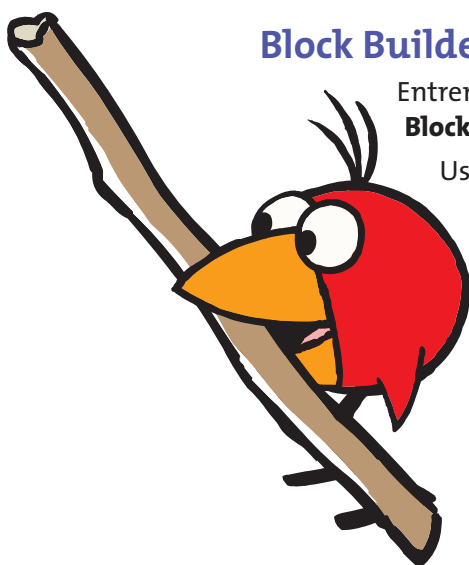
Entren al sitio web y hagan clic en el **cofre de juguetes**. Luego escojan **Block Builder** (A construir con bloques).

Usen los bloques para construir un cohete, un edificio alto, un castillo y otras cosas.

Torre de papel: Actividad científica para la familia pbskids.org/zoom/printables

Hagan clic en **Activity Pages**. Bajo **Structures**, hagan clic en **Paper Tower ESP** (Torre de papel).

Veamos qué tan alta es la torre que podemos construir con sólo dos hojas de papel periódico. Se trata de un reto interesante que los niños pueden hacer junto con los padres.



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