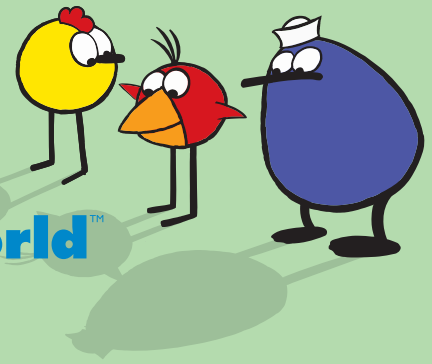


# PEEP and the Big Wide World™



## Exploring Shadows

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

- **A shadow is made when an object blocks the light.**
- **You can change the size of a shadow by moving an object closer to or farther from the light.**
- **You can change the shape of a shadow by turning the object.**

### Featured episode: *Night Light*

- **The animated story:** Concerned that the sun has forgotten to rise, Peep and Quack are relieved when they discover a flashlight. But Quack is amazed, and then annoyed, to find that his shadow is smaller than Peep's!
- **Live-action video:** The kids trace shadows inside on paper and outside on the driveway.

#### Materials

- *Peep and the Big Wide World* episode, "Night Light"

### Introduce

Show the PEEP episode *Night Light* and the live-action video that follows it (11 minutes total). As the children watch, you may want to ask a few questions that encourage children to focus on the science concepts. For example, ask: *What happens when Peep and Quack stand in the light? How are Peep and Quack changing the size and shape of their shadows?*

### Explore

Set up the three shadow activities in distinct areas of a darkened 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 with particular materials that capture their interest.) For each activity, have a volunteer introduce the materials and then invite children to explore. 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, such as: *How did you make that shadow? I wonder what would happen if...*

#### Materials

- slide projector (with a blank slide) or overhead projector positioned to cast light on a wall

## Activity 1: Casting Shadows

Invite children to cast their shadows on the wall, just as Peep and Quack did in "Night Light." Ask questions such as:

- *What happens to your shadow if you move closer to the projector? Farther away?*
- *Can you and your friend make your shadows join and make just one shadow?*
- *What happens to your shadow if you turn sideways?*

## Materials

- shoebox shadow theaters (to make: cut off bottom of uncovered box, cover one opening with wax paper or white paper and secure with tape)
- flashlights
- small objects to place inside box: stapler, comb, toy animals, etc.

## Activity 2: Shoebox Shadow Theater

This activity works best on a tabletop. Prop or hold a flashlight inside the shadow theater box, shining the light on the paper. Invite children to place an object between the flashlight and the paper. Ask questions such as:

- *What do you see from inside the box? What do you see from the other side?*
- *What happens when you move the flashlight? When you turn the flashlight off? Why do you think that is?*

Play a “Mystery Shadows” guessing game—invite a child to place a “mystery object” inside the box, casting its shadow on the paper screen. Ask children to view the shadow from outside of the box and guess what object is making the shadow.



Photo: Tanit Sakakini

## Materials

- paper and scissors or PEEP Shadow Puppets template (provided in Kit)
- tape
- craft sticks or drinking straws
- a gooseneck or clip-on lamp, or an overhead or slide projector (with a blank slide) positioned to cast light on a wall

## Activity 3: Shadow Puppets

Have children cut out shapes for their shadow puppets, or precut the PEEP characters from the template provided. Attach a craft stick (or drinking straw) handle to each puppet and let children create shadow shows on the wall.

Have children move their puppet closer to the lamp, then farther away. Have them turn the puppet in all directions and watch the shape of the shadow change. Ask questions such as:

- *How does the shadow look different from your puppet?*
- *What happens when you move the puppet closer to the light? Farther away? Can you make up a story and show how your puppet grows or shrinks?*
- *Try turning your puppet. What happens?*



## Wrap Up

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

- *How can you change the way a shadow looks?*
- *How might you play with shadows inside at home? How about outside?*

Distribute the Event Evaluation Form and Family Handouts (*Explore Shadows with Your Child* and *Exploring Science with Kids*) to parents and caregivers. Draw attention to your display of shadow-related books and/or talk about related exhibits. If you are distributing free books, hand those out as well.



# Explore Shadows!

Join us for hands-on science fun.

Play with shadows and shadow puppets.

## Who?

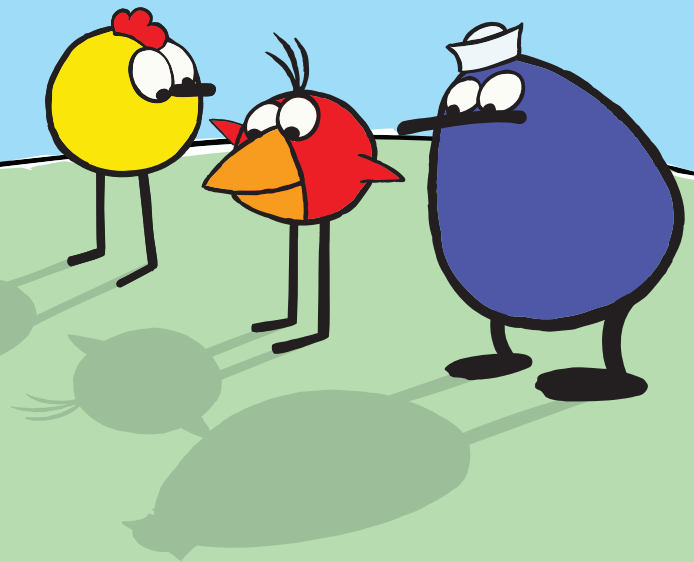
Kids ages 3–5 and their families and caregivers

## When?

## Where?

**It's free!**

**PEEP** and the  
Big Wide World™  
Hatching new scientists every day!



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# Exploren sombras

Participen en un proyecto científico divertido.  
Jueguen con las sombras y las sombras de los títeres.

## ¿Quiénes?

Niños de 3 a 5 años, y sus familias y cuidadores

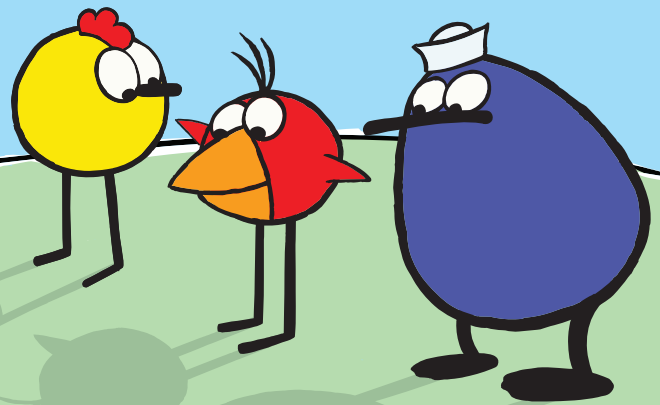
## ¿Cuándo?

## ¿Dónde?

## ¡Gratis!

El Mundo Divertido de **PEEP**™

Incubamos científicos  
todos los días



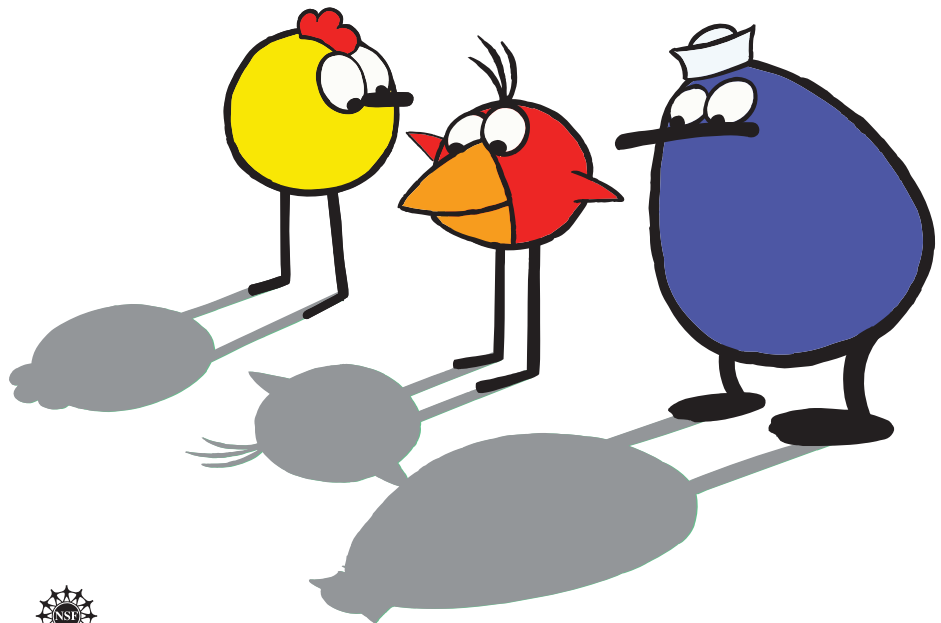
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# PEEP and the Big Wide World™

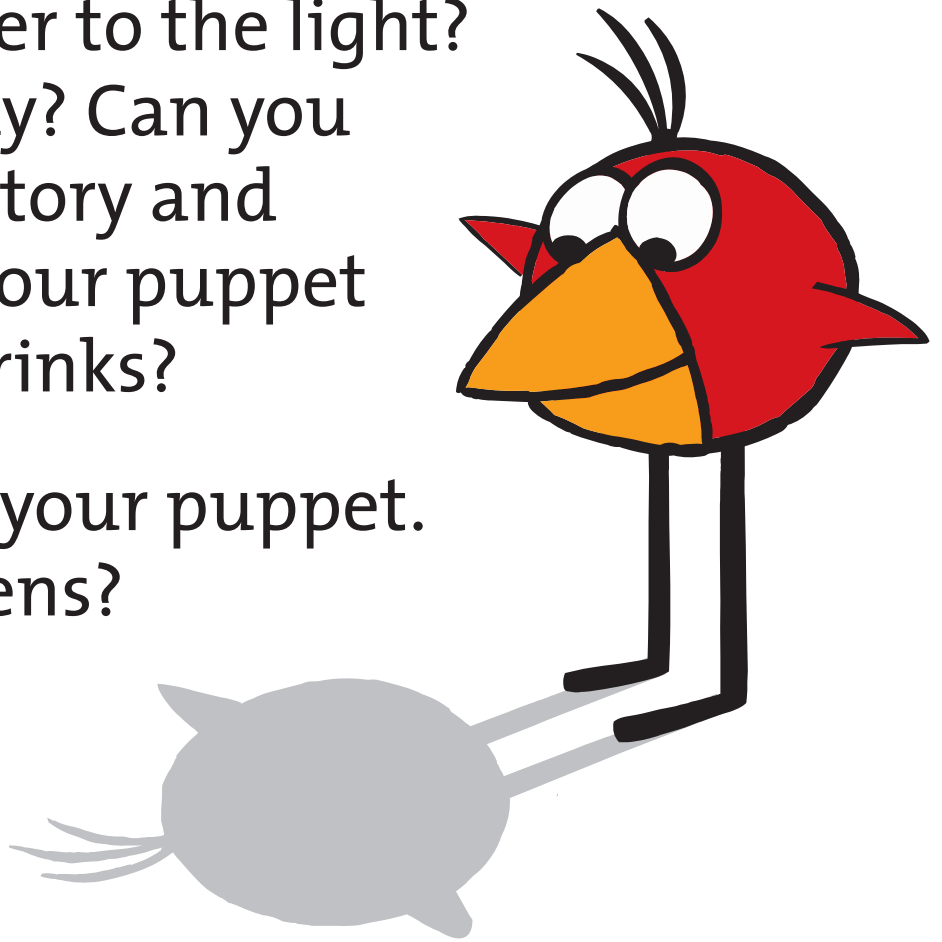
## Casting Shadows

- What happens to your shadow if you move closer to the light source?  
Farther away?
- Can you and a partner make your shadows join to make one shadow?
- What happens to your shadow if you turn sideways?



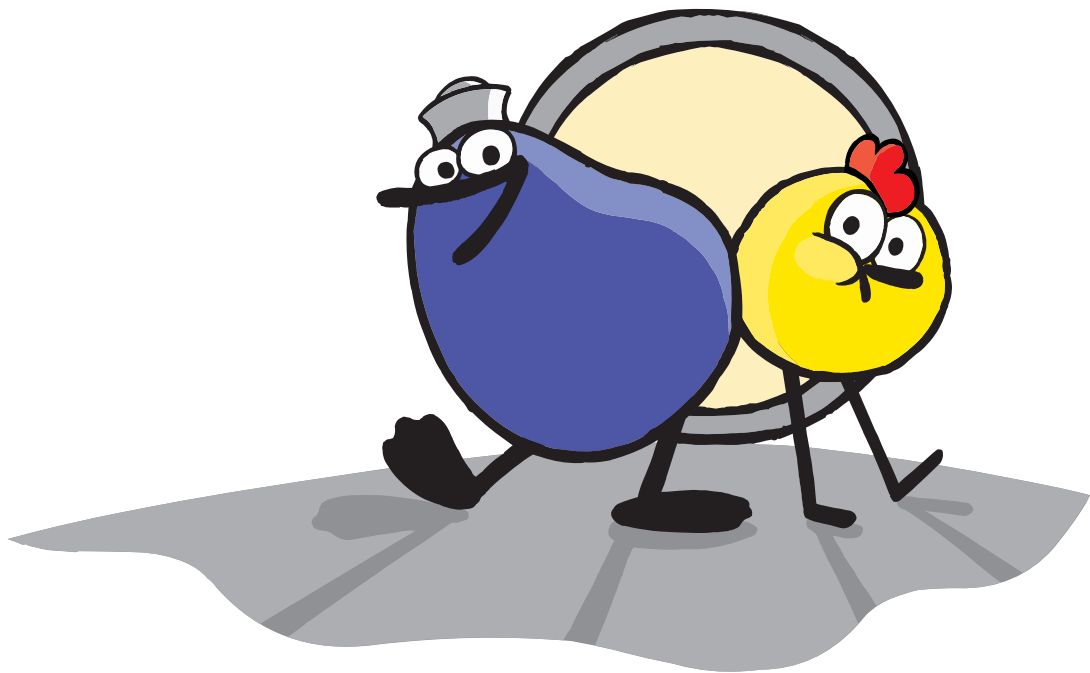
## Shadow Puppets

- How does the shadow look different from your puppet?
- What happens when you move the puppet closer to the light? Farther away? Can you make up a story and show how your puppet grows or shrinks?
- Try turning your puppet. What happens?



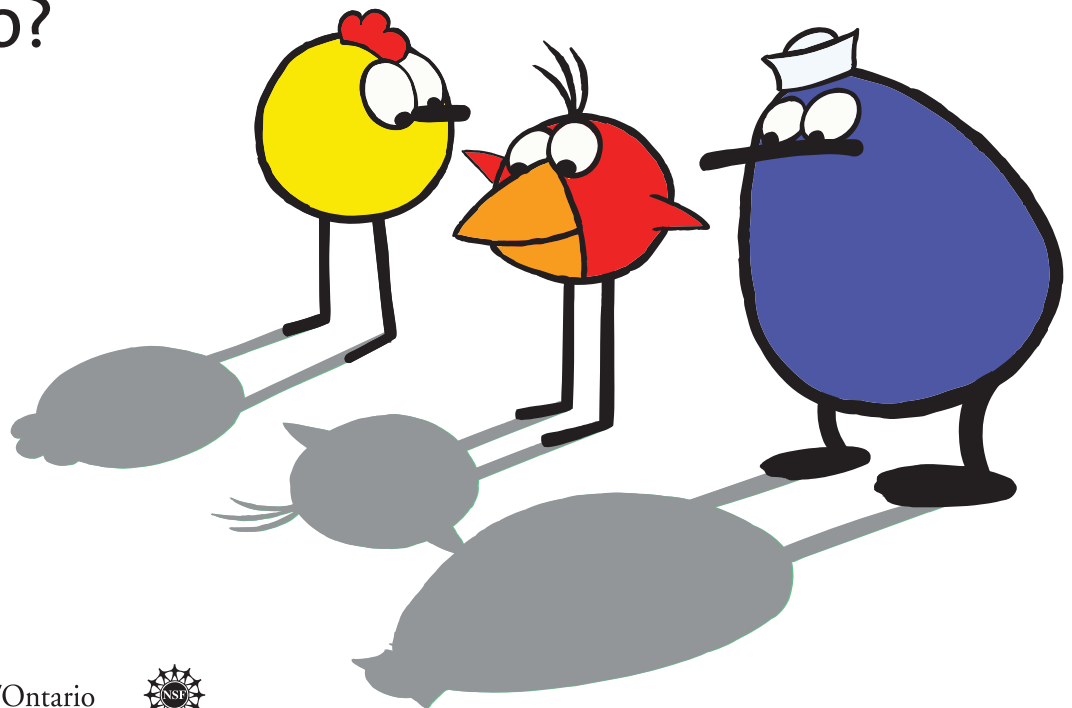
## Shoebox Shadow Theater

- What do you see from inside the box?
- What happens when you move the flashlight?
- What happens when you turn the flashlight off? Why do you think that is?



## Las sombras

- ¿Qué le pasa a tu sombra si te acercas a la fuente de luz? ¿Y si te alejas?
- ¿Pueden tú y un compañero acercarse para que sus sombras individuales conformen una sola sombra?
- ¿Qué le pasa a tu sombra si te paras de lado?





## Las figuras y sus sombras

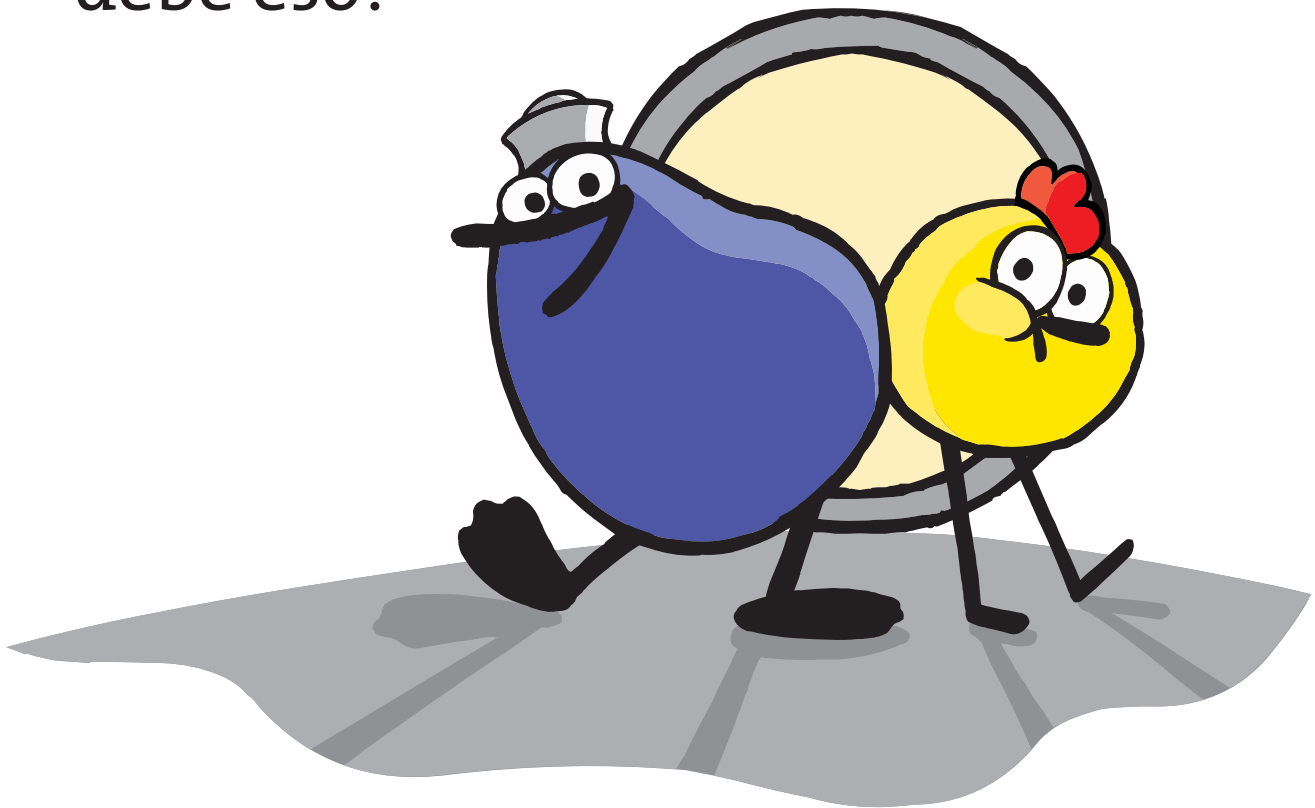
- ¿Qué diferencias ves entre tu figura y su sombra?
- ¿Qué pasa cuando acercas la figura a la luz? ¿Y cuando la alejas? ¿Puedes inventar un cuento y mostrar cómo tu figura se agranda o se achica?
- Haz girar la figura. ¿Qué pasa?



# El Mundo Divertido de PEEP™

## Teatro de sombras en una caja

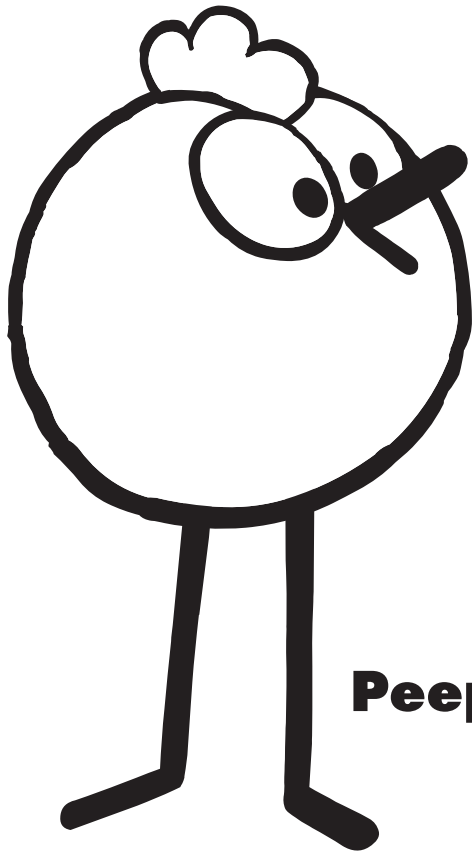
- ¿Qué ves desde dentro de la caja?
- ¿Que pasa si mueves la linterna? ¿Y cuando la apagas? ¿A qué crees que se debe eso?



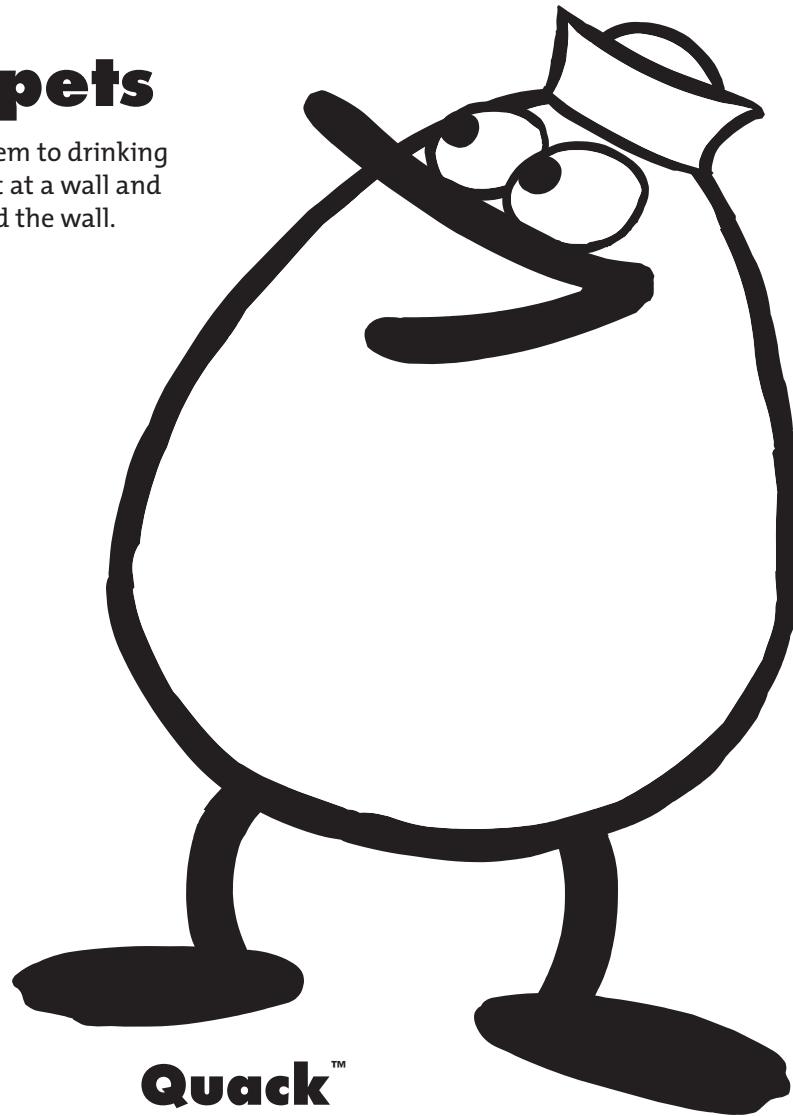
# PEEP and the Big Wide World™

## Shadow Puppets

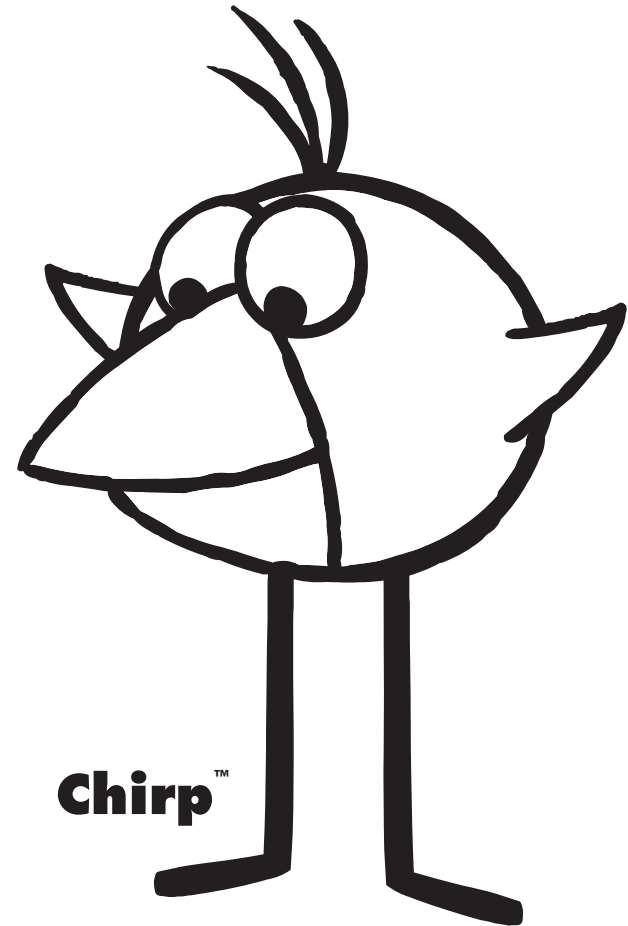
Cut out the PEEP characters and tape them to drinking straws or craft sticks. Shine a bright light at a wall and hold your puppets between the light and the wall. Put on a shadow puppet show!



**Peep™**



**Quack™**



**Chirp™**



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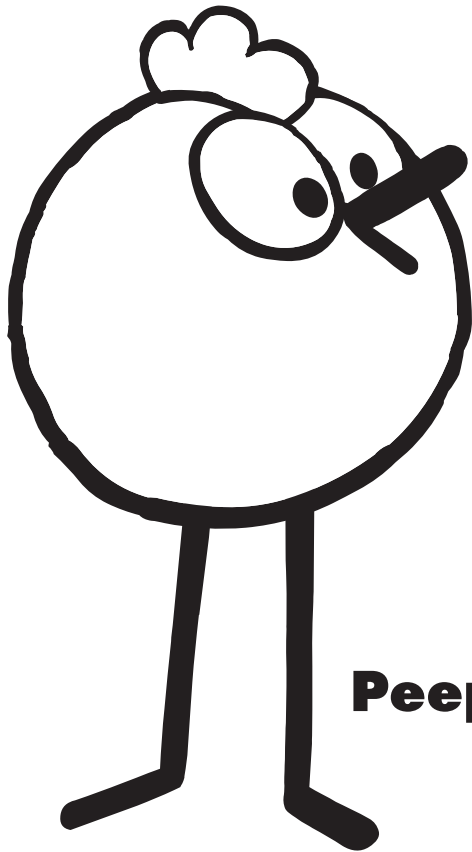


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# El Mundo Divertido de PEEP™

## Títeres con sombras

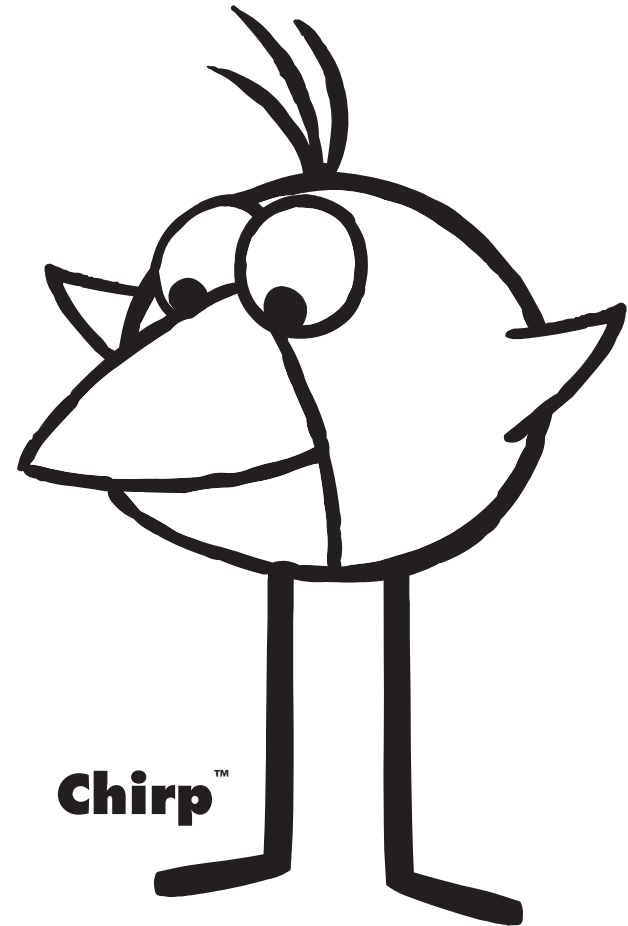
Recorte los personajes de PEEP. Use cinta pegante para pegar los títeres a pitillos (pajitas) o a palitos de helados. Dirija una luz brillante hacia la pared y coloque los títeres entre la luz y la pared. Hagan una función para el teatro de títeres.



**Peep™**



**Quack™**



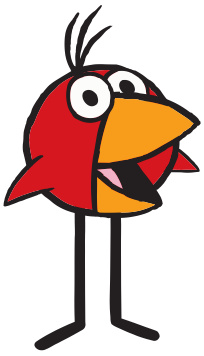
**Chirp™**



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# PEEP and the Big Wide World™

## Explore Shadows with Your Child

### Searching for Shadows

**Go outside on a sunny day with your child.** Ask: *Where is your shadow? What other shadows can you see?* Hop, dance, and do silly walks together. Watch how your shadows move.

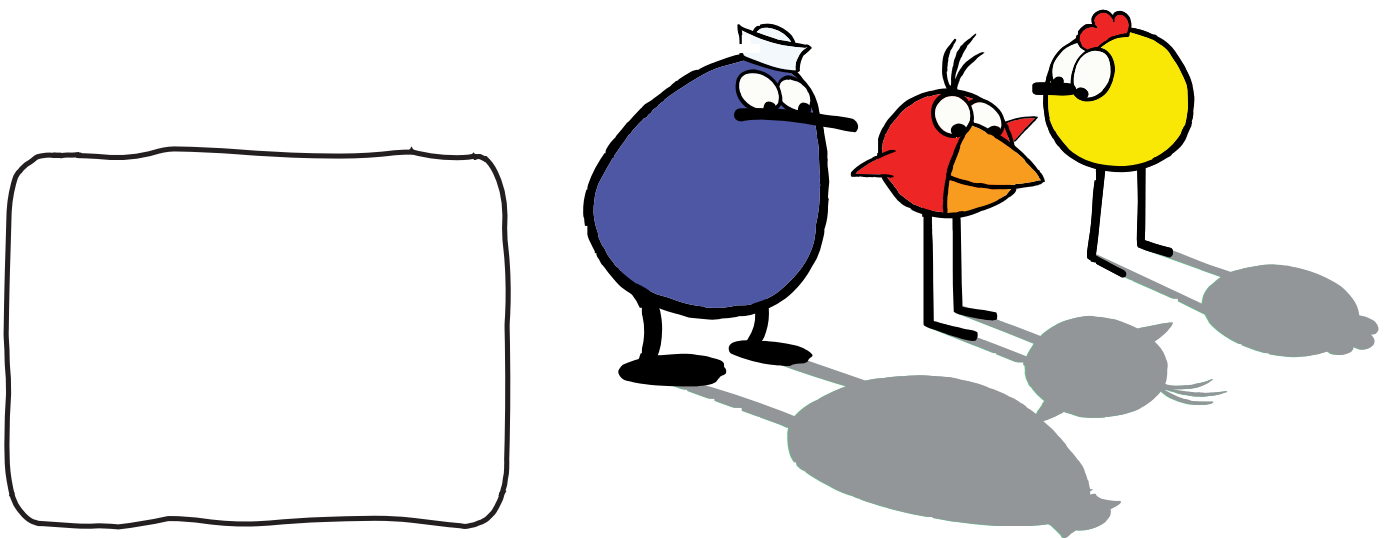
**Take a walk with your shadows.** Notice what happens to your shadows when they fall on a wall, some steps, or a bench.

**Compare shadows at different times of day.** Help your child notice the shape and size of shadows in the early morning, noontime, and late afternoon. Ask your child to describe his or her shadow: *How is your shadow like you? How is it different? How did your shadow change during the day?* You might want to draw chalk outlines of your child's shadow at different times of the day.

### Shadow Theater

**Turn on a lamp or flashlight** in a darkened room. Have your child join you in moving your hands in front of the light and watching the shadows on the wall. Ask your child: *How can you make your shadow bigger? Smaller? What shadow shapes can you make with your hands?*

**Put on a shadow play!** Use your hands to make shadows that look like a flapping bird, a quacking duck, or a running spider. Or use toys and household objects as shadow puppets. You can also make shadow puppets out of paper—cut out shapes and tape them to the top of a ruler, drinking straw, or unsharpened pencil.





# Learn More about Shadows

## Read and Find Out!

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

**Guess Whose Shadow?** by Stephen R. Swinburne  
Boyd's Mills Press, 2002

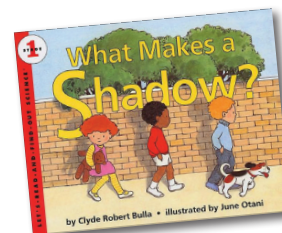
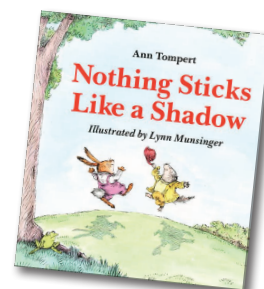
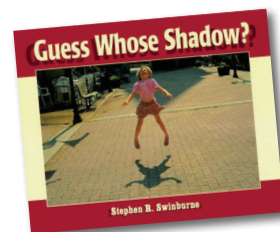
Shadows come in all shapes and sizes. This book invites the reader to guess the objects that make the mysterious shadow shapes.

**Nothing Sticks Like a Shadow** by Ann Tompert  
HMH Books for Young Readers, 1988

Can Rabbit escape his shadow? "I can if I want to," says Rabbit. "Oh no, you can't," says Woodchuck. The bet is on. Who will win?

**What Makes a Shadow?** by Clyde Robert Bulla  
HarperCollins Publishers, 1994

This "Let's-Read-and-Find-Out Science" book encourages children to explore and have fun with shadows both indoors and outdoors.



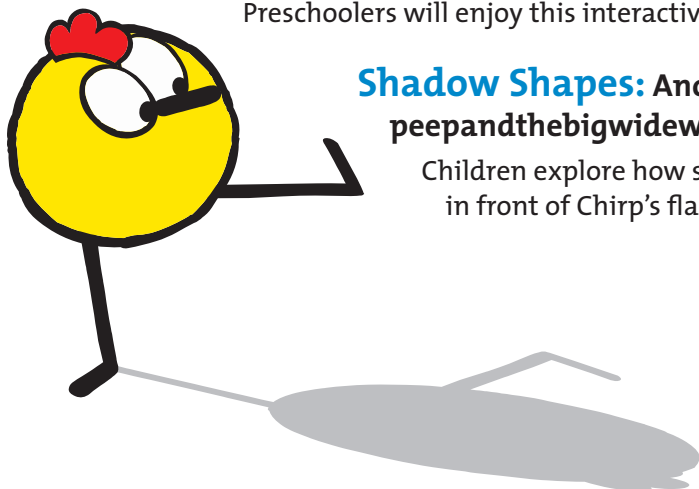
## Click and Explore!

**Night Light:** An online game  
[peepandthebigwideworld.com/en/kids/games](http://peepandthebigwideworld.com/en/kids/games)

Preschoolers will enjoy this interactive, narrated game modeled after flashlight tag.

**Shadow Shapes:** Another game from PEEP  
[peepandthebigwideworld.com/en/kids/games](http://peepandthebigwideworld.com/en/kids/games)

Children explore how shadows change size and shape by moving objects in front of Chirp's flashlight.



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# El Mundo Divertido de PEEP™

## Explore las sombras con el niño

### Busquemos las sombras

**En un día soleado, salgan usted y el niño.** Pregúntele: *¿Dónde está tu sombra?* *¿Qué otras sombras ves?* Salten, bailen y caminen de manera chistosa. Observen cómo se mueven las sombras.

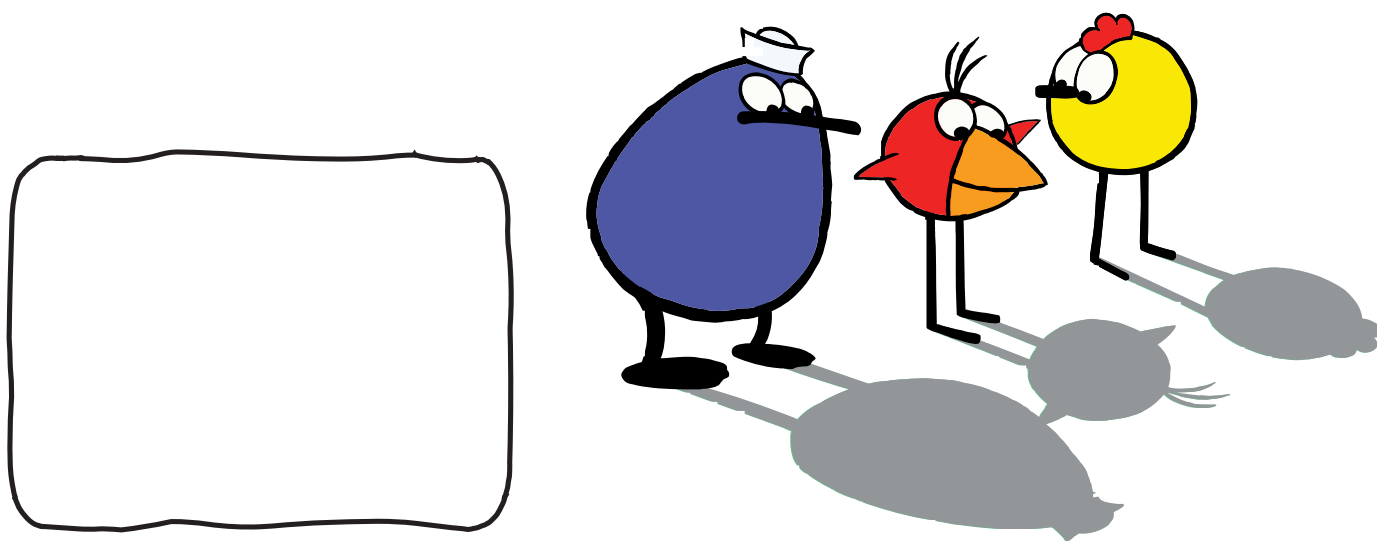
**Caminen con las sombras.** Observen lo que pasa cuando las sombras caen sobre un muro, sobre las escaleras o sobre una banca.

**Comparen las sombras a diferentes horas del día.** Ayúdele al niño a observar la forma y el tamaño de las sombras temprano en la mañana, al mediodía y tarde en la tarde. Pídale al niño que describa las sombras: *¿En qué se parece esta sombra a ti?* *¿Cómo es diferente?* *¿Cómo cambió tu sombra durante el día?* Sería interesante usar tiza (gis) para dibujar el perfil de la sombra del niño a diferentes horas del día.

### El teatro de sombras

**Encienda una lámpara o linterna** en un cuarto oscuro. Ambos pasen las manos delante del haz de luz y observen las sombras en la pared. Pregúntele al niño: *¿Cómo se agranda la sombra?* *¿Cómo se achica?* *¿Qué forma les puedes dar a las sombras usando las manos?*

**Hagan una obra de teatro con las sombras.** Con las manos hagan sombras de un pájaro volando, un pato cuaqueando o una araña corriendo. O usen juguetes o artículos del hogar para hacer figuras que hagan sombras. También pueden hacer figuras de papel que hagan sombras. Se recortan las formas y se les pegan a una regla, un pitillo (o pajita), o a un lápiz sin punta.



# Aprendamos más sobre las sombras

## Leer y descubrir

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

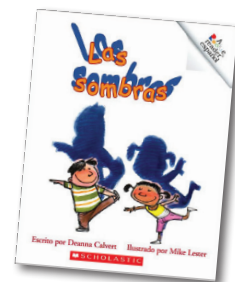
**Luz y sombra** de Susan Ring  
Capstone Press, 2005

Se explora cómo se forman las sombras y cómo se pueden cambiar.  
Es un libro fácil de leer lleno de fotografías de gran colorido.



**Las sombras** de Deanna Calvert  
Children's Press, 2005

Las sombras pueden hacer muchas cosas: saltar la cuerda,  
correr carreras, jugar otros juegos. Diviértanse leyendo este  
libro juntos en voz alta.



## Hagan clic y exploren

**Formas de Sombras** Juego en internet de PEEP  
[peepandthebigwideworld.com/es/ninos/games](http://peepandthebigwideworld.com/es/ninos/games)

Los niños exploran cómo las sombras cambian de tamaño y forma cuando se mueven los  
objetos que están delante de la linterna de Chirp.

**Shadowcasting:** Juego en Internet [pbs.org/parents/creativity](http://pbs.org/parents/creativity)

Hagan clic en *Creativity Challenge* y escojan *Shadowcasting* (Hagamos sombras).  
Pongan las manos delante del haz de luz. ¿Qué clases de sombras pueden hacer?

