

Colors Educator Guide

How to lead parents through the four-week colors unit

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Prepare Ahead of Time

Before you meet with parents:

1. Download the PEEP Colors app

Download the app to your phone or tablet from the Apple or Android app stores and try it yourself. You can also search the app stores for **Peep Family Science**.





Go screen-by-screen through the app so you understand how it works. It's important for you to be familiar with it ahead of time since you will be helping parents download it to their own phones or tablets and showing them how to use it.

2. Practice modeling an activity

Each week you will model one hands-on activity for parents. Prepare ahead of time by:

- collecting the materials you need
- reading the instructions in this guide for each activity
- practicing the activity before meeting with parents



3. Just for Educators section

In addition to reading through this guide, pay special attention to the *Just for Educators* section at the end, which goes into more depth about the parent strategies, offers problem-solving tips, and provides a list of recommended books and online games related to colors.

4. Review the Educator video

You may want to review the Educator video your organization showed you during the initial PEEP orientation. It models how you might talk to parents about PEEP and build their confidence about doing science together with their children.

5. Review materials for the hands-on activities

The materials parents will need for each activity are listed in the app. Review them ahead of time so you can anticipate whether any might be difficult for parents to obtain.

- For Week 2, families will mix two colors together to create a new color. They will need either watercolor paints or washable tempera/poster paints. The tempera/poster paints are the better choice, but they may not always be easy for parents to obtain. If that's the case, your organization might consider buying the paints and sharing with parents.
- For Week 3, families will use food coloring or watercolors to make colored water. Food coloring is the better choice (and is more fun for kids to play with), but both will work. Families will also need a flashlight or the flashlight feature on their smartphone. If neither of those are available, a lamp with a bright bulb also works.

Introduce Parents to Colors

The PEEP Colors App

1. Help them download the app

- Help parents **download the app** to their own phones or tablets.
- Explain that once they have **downloaded the app**, parents won't need to use their **data plan** or the **Internet**. The app can now be used anywhere, indoors and out.

2. Introduce the app

Show parents how it's organized.

Organization

- The Colors app offers activities to do over 4 weeks.
- **Each week** offers **2 days** of science. You can do the activities whenever you want during the week.
- Each day has 2 activities:
 - watching and talking about a PEEP video
 doing a science activity together
- It takes about 20-30 minutes to do each day's activities.



Special Features

Point out the special features.

- **Parent videos:** In addition to animated videos for children, the app includes Parent videos. Before **Week 1** and **Week 3**, there are short videos showing what happens during that week.
- **Parent Strategies:** As families use the app, a PEEP character sometimes pops up with a parent strategy—a tip on how to get the most out of the science activity.

Using Educational Media with Children

This may be the first time you are encouraging families to use media to help educate their children. Well-designed educational media (videos, online games, apps, and TV shows) can help children learn—and if they are guided by an adult, children can learn even more.

Why use media for learning science?

Sometimes educators are afraid media will take the place of other learning activities. Media is not a substitute for the hands-on science experiences children get through play and exploration with actual objects and materials. That's why the American Academy of Pediatrics recommends that parents limit media to one hour or less per day for 3- to 5-year-olds.



But media can enrich children's science learning. Children learn about science in many different ways: by watching, listening, talking, doing, and playing. The more ways science is presented, the more ways children have to learn.

Media can:

- encourage children to explore something they're already interested in
- spark an interest in something new
- model how to explore and talk about science. (The PEEP characters, for example, ask questions, investigate, and test out ideas.)
- show children things they can't experience in person
- engage children's imaginations
- help children document and reflect on their real-life experiences by taking photos or recording videos
- help parents by modeling how to explore and talk about science. This can be especially helpful to parents who are not yet confident about doing science with their children

For children to learn the most they can from media, they need help from adults to:

- connect what they are watching to their own lives
- · share the experience by talking about it together

How PEEP uses media

The PEEP videos, games, and apps follow the best practices for using media with children ages 3 to 5. Developed with guidance from preschool science and early childhood experts, PEEP teaches age-appropriate science concepts and models science skills. Each experience in the PEEP Family Science app combines a PEEP video with a related hands-on activity and encourages families to explore together, talk, and share their ideas. The PEEP app offers parents questions and prompts throughout, so they can connect with their children at every step of the way, whether they're co-viewing a video or doing an activity together.

Tips for parents on using media

Your children will be using media their whole lives. Help them use it in positive ways, right from the start!

- Choose media that is educational and age-appropriate. It should build on the kinds of things your child is ready to learn and use simple story lines that engage your child's imagination.
- Limit screen time to one hour a day for children ages 3 to 5 as recommended by The American Academy of Pediatrics.
- Avoid media during mealtimes and before bed.
- Share the experience with your child. Children can't learn from watching media alone they need an adult to help them understand what they are seeing and connect it to their daily lives. Talking together about what you are watching makes a big difference!



Educational Media: Online Resources For more on educational media and screen time, see:

Common Sense Media

The site helps parents make educational and age-appropriate media choices for their children and rates movies, games, apps, TV shows, websites, books, and music.

Media and Young Minds, American Academy of Pediatrics Council on Communications and Media, Pediatrics, 2016. See their guidelines on technology and child development.

Technology and Interactive Media as Tools in Early Childhood Programs Serving Children from Birth through Age 8, National Association for the Education of Young Children (NAEYC) and the Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College (2012).

See their recommendations on the role of media in children's lives.

Sites that offer high-quality media for preschoolers include:

PEEP and the Big Wide World

For more educational videos, games, apps, and hands-on science activities featuring Peep and his friends, visit the main website. All material is in English and Spanish.



PBS KIDS

PBS KIDS features such trusted shows as Sesame Street, Curious George, Dinosaur Train, Daniel Tiger's Neighborhood, Peg + Cat, Ready, Jet, Go!, and many others. There is also a section called PBS Parents that offers hands-on activities, tips on raising children, and other parenting resources.





The Parent Strategies

Here's what to share with parents.

There are **three different parent strategies** that will pop up in the app as you use it. What do all these strategies have in common? They are about you and your child learning **together!** As a parent, you probably already use these strategies with your child. They are also great strategies to help your child get excited about science.

1. Play and Explore Together

Your attention and encouragement make a big difference!

2. Ask Questions and Talk About Ideas

The more you talk together, the more your child learns.

3. Explore More!

The more you do together, the more chances your child has to grow.

Play, Talk, and Explore More!

What young children need **more than anything else** to develop and grow is a loving parent cheering them on! Doing the activities **together**, whether it's watching a science video or trying a science activity with you, is how a young child learns best.

PEEP: It takes a parent—not a scientist!

As a parent, you don't need to know all the answers! It's fine to say, "I don't know. Let's see if we can find out together." At this age, **exploring together** is what science is all about. Play, talk, and explore more!

The Science of Colors

Here's what to share with parents.

What your child will learn:

- Basic science ideas, including:
 - A single color can have many different shades.
 - Different colors can be mixed together to make a new color.
 - When light shines through something colored, it changes into the same color.
- Science vocabulary words like mix, color, shade, light, shine
- Science skills: Making observations and comparisons, testing and problem solving, and communicating and sharing ideas.
- **Preschool standards:** Aligned with the Next Generation Science Standards and Head Start Early Learning Outcomes Framework, PEEP Family Science strengthens children's literacy and critical thinking skills, and develops their initiative, curiosity, attention, and perseverance—just what young children need to thrive in school.

Here are some of the activities parents and children will do together.



Week 1: Colors Around Us Match the colors of crayons to things around us.



Week 2: Mixing Colors Mix different colors of paint together to create new colors.



Week 3: Colors and Light What happens when you shine light through colors?



Week 4: Hard-to-See Colors Play a game of color hide-and-seek.



WEEK 1: Colors Everywhere

Explore the colors around us, indoors and outdoors.

Here's what to share with parents.

1. Watch the Parent Video: Colors Week 1

You'll find the video at the beginning of Week 1.

Before you watch, say:

Let's watch a mom and her son doing this week's activities together. It also shows the mom using the three parent strategies we've talked about.

After you watch, say:

Let's talk about how the mom used the strategies:

- *Play and Explore Together:* The mom and her son played together. What did you notice about how they played?
- Ask Questions and Explore Ideas: Did you see how the mom asked lots of questions? I'll bet this is something you already do with your child! Tell me how you start a conversation with your child and keep it going.
- **Explore More:** Besides doing the main activities, the mom and son explored colors in lots of other ways. What did they do to explore even more?

Encourage parents to also watch the video on their own—it's a great way to get comfortable exploring science!



2. Introduce the Week 1 activities

Go screen-by-screen through Day 1 and Day 2 of Week 1 and talk about the activities together.

3. Model a Week 1 activity

- Click on *Colors Around Us* in the app.
- Go through each screen of the app for the activity, reading the instructions and the questions aloud.
- Or role-play: you be the child and have the mom use the app to guide you through the activity.

• Show parents that

the activity ends with two *Keep Learning!* activities. Tell parents they can do these activities or come up with their own ideas for ways to continue exploring colors. The more ways they come up with to play and explore, the more their children learn.





WEEK 2: Mixing Colors

Explore mixing colors to make a new one.

Here's what to share with parents.

1. First, talk about Week 1

Some questions you might ask:

- How did the activities go last week? Tell me about what you did together.
- Tell me about how you used the parent strategies:
 - The first one is **Play and Explore Together.** What did you and your child have the most fun doing together?
 - The second is Ask Questions and Talk about Ideas. Can you remember how you got your child talking about one of the activities? What did you and your child talk about? Did you have trouble getting your child to talk?
 - The third strategy is **Explore More!** Did you try the Explore More ideas or get creative and find other ways to explore colors indoors or outdoors? Describe what you did.

2. Introduce the Week 2 activities

Go screen-by-screen through Day 1 and Day 2 of Week 2 and talk about the activities together. (Note: There is no parent video for Week 2.)

3. Model a Week 2 activity

• Click on the *Mixing Yellow and Red* activity in Week 2 of the app.



- Using the supplies you brought with you, model the activity for parents.
- Or role-play: you be the child and have the mom use the app to guide you through the activity.
- You can use either tempera/poster paints or watercolor paints, but the tempera/poster paints will work much better for this activity.
- Mixing red and yellow together will make a new color: orange. You may have to experiment with adding more yellow (or more red) paint to make the orange.
- Encourage parents to try the *Keep Learning!* ideas at the end of this activity and the Day 2 activity. They should also feel free to come up with their own ideas for activities. The more ways they come up with to play and explore, the more their children learn.



WEEK 3: Colors and Light

Explore what happens when light shines through colors.

Here's what to share with parents.

1. First, talk about Week 2

Some questions you might ask:

- How did the activities go last week? Tell me about what you did together.
- What did you and your child discover about mixing colors?
- Did you run into any problems with the activities? How did you solve them?
- Tell me about how you used the parent strategies:
 - The first one is **Play and Explore Together.** What did you and your child have the most fun doing together? Tell me about it.
 - The second is **Ask Questions and Talk about Ideas.** What did you talk about while you did the activities or watched the video? How did you try to get your child to talk about what you were doing?
 - The third strategy is **Explore More!** How did you get creative and explore mixing more colors? Which of these extra activities interested your child the most?

2. Watch the Parent Video: Colors Week 3 Together

You'll find the video at the beginning of Week 3.

Before you watch, say: Let's watch a mom and her son doing this week's activities together. It also shows the mom using the three parent strategies we've talked about.

After you watch, say: Let's talk about how the mom used the strategies:

- *Play and Explore Together:* Did you notice how the mom played along but didn't take over? How does that work when you try it with your child?
- Ask Questions and Talk About Your Ideas: How did the mom get her child to talk about the activity?
- **Explore More:** They explored more in a couple different ways. What did they try? Do you have any other ideas about how to explore more using color and light?

Encourage parents to also watch the video on their own—it's a great way to get comfortable exploring science!



3. Introduce the Week 3 activities

Go screen-by-screen through Day 1 and Day 2 of Week 3 and talk about the activities together.



4. Model a Week 3 activity

- Click on *Colored Light* in the app.
- Using the materials you brought, model the activity for parents.
- Or role-play: you be the child and have the mom use the app to guide you through the activity.



- You can use food coloring or watercolors to make colored water. Food coloring works the best (and children love watching the food coloring mix with the water).
- If parents don't have a flashlight handy, they can use the flashlight on their phones.
- Encourage parents to do the *Keep Learning!* ideas at end of the activity to explore more.

WEEK 4: Hard-to-See Colors

Some colors are hard to see because they blend in with the colors around them.

Here's what to share with parents.

1. First, talk about Week 3

Some questions you might ask:

- How did the activities go last week? Tell me about what you did together.
- When you did the Colored Light activity, what do you think your child learned?
- Did you run into any problems? What did you do?
- Tell me about how you used the parent strategies:
 - The first one is **Play and Explore Together.** Which activity did your child like the most? Tell me about how you explored together.
 - The second is **Ask Questions and Talk about your Ideas.** Can you remember how you got your child talking about one of the activities? What were some of the things your child noticed about colors?
 - The third strategy is **Explore More!** Did you get creative and find other ways to play with light and colors? Describe what you did.



2. Introduce Week 4

Go screen-by-screen through Day 1 and Day 2 of Week 4 the app and talk about the video and the activities. (Note: There is no parent video for Week 4.)

3. Model a Week 4 activity

- Click on the *Bug Hide-and-Go Seek* activity in Week 4 of the app.
- Using the materials you brought, model the activity for parents.
- Or role-play: you be the child and have the mom use the app to guide you through the activity.
- The first time you "hide" the bugs, you will put them in places where their colors stand out and are very noticeable. (For example, you might put a red bug on blue pillow, which will make it easy to see.)
- The second time you hide the bugs, you will put them in places where the background colors are similar or match. The bugs will blend in with the background and be harder to see. (For example, you might put a green bug in a plant, which makes it harder to see.)



- The *Keep Learning*! idea at the end of the activity has parents and children switch roles the child now hides the bugs and the parent looks for them. This is a great opportunity for parents to let their children lead the activity. Children often love being in charge. It keeps them interested and excited about what they are doing.
- It's also a good opportunity for parents to wonder out loud while they are searching for the bugs. Listening to what their parents are saying helps children understand the science idea behind the activity. Some examples:
 - Oh! That bug was easy for me to find! That's because it's bright red and it's on a dark blue background.
 - But this bug wasn't easy for me to see. That's because it's blue and it's on a blue rug. The two blues are almost the same and that makes it harder to see.
- In this activity, parents will take pictures of where the bugs are hidden and will then look at the pictures together. They will talk about why some bugs were easy to find and others were hard to find. This is an important part of the activity. To learn, children need to review and talk about what they did.

Just for Educators

More about the Parent Strategies

Research shows that children who do activities with an adult often learn more than children who do an activity on their own. Why?

- Children need to talk about and make sense of their experiences.
- They need to feel that what they do and think about is valued and interesting.



• They need someone asking them questions and sharing ideas to help them think more deeply and build on what they've already learned. Watching and talking together makes a big difference!

The three strategies help parents get the most out of the science activities. Here is more detail about them, listing different ways parents can use them.

1. Play and Explore Together

Your attention and encouragement make a big difference!

How to do it:

- Notice what excites your child—and play along!
- Guide your child's science play—but don't take over!
- Put your child in charge—giving children more control keeps them interested and having fun.

2. Ask Questions and Talk About Your Ideas

The more you talk together, the more your child learns.

How to do it:

- Take turns listening and speaking.
- Talk out loud about your ideas so your child can learn from listening to you. Start by saying "I wonder ...," "I think ...," and "What if ...?"
- Ask questions to help your child think more about the activity. Start a question by asking, "What do you think ...?"
- Connect what you are doing to something your child already knows.
- Take pictures or videos, or make charts or draw pictures of the activities. Then discuss them. To learn, children need to reflect (think about) what they did.

3. Explore More!

Children learn new things each time they explore.

How to do it:

- Do the activity again! Repetition helps children learn.
- Add new materials to explore in a different way.
- Play indoors and outdoors. Explore the same science topic in a different place.

Here's an easy way to remember all three strategies: Play, talk, and explore more!

Problem-Solving Tips

Not every activity will go well and every activity might not interest every child. Here are some problems parents may run into and some suggestions for solving them.

Too hard? Too easy?

• If the activity is too hard, help your child— but try not to take over and do too much.



Really interested? Or really bored?

- If your child wants to do an activity you've already done, let him/her play again instead of doing a new activity. Keep doing what gets your child excited and curious.
- If your child loses interest in the activity, let him/her play with the same materials in whatever way he/she wants to. Giving children more control can help get them interested.
- Feel free to make changes to the activities so that your child stays interested.

Not enough time?

- As a parent, you are sometimes too busy to spend much time playing with your child. But if you can help it, try not to rush your child through the activity. Your child needs time to make discoveries.
- Try doing the activity at a time or day when you are not feeling so pressured to do other things.
- If you have to hurry through an activity, have your child continue to play on his/her own. Check back every once in a while to ask questions and comment on what your child is doing.

Questions too hard?

• If a question is too hard for your child to answer, move on to another. (But before moving on, you might try asking it in a different way.) At this stage, it's more important to have fun together than to understand all the science ideas in an activity.

Just getting a yes or no answer?

- If your child answers your questions with just a single word, keep trying to get a conversation started. You might not have success today, but eventually your child will begin talking more.
- Follow up a yes or no response with: Tell me more ...
- Wonder out loud. If your child hears you talk about what you're thinking about, he/she can learn to do the same. You might say, *I wonder how we can make the orange color more orange? Maybe if we add more yellow ... First, I'll try adding a little more yellow ... and if that doesn't work ... I'll add even more.*



- Ask open-ended questions. These are questions that can't be answered with just a *yes* or *no*. It's a great way to encourage children to express themselves more fully. Questions beginning with **How** and **What** are good examples:
 - How did you make that brown color?
 - What did you notice when we shined the light onto the aluminum foil?

What if you don't know the answer?

What if your child asks a question and you don't have the answer? It's fine to say: I'm not sure. Let's see what we can find out together. Then talk together, ask questions, and explore. Preschool science is about helping children learn how to think, listen, investigate, understand, and communicate—not to get the "right answers."

Here's how such a conversation might go:

Child: I want to make purple. How do I make it?

Mom: That's an interesting question! I'm not sure. (She praises her child's curiosity)

Why don't we mix some colors and see if we can figure out how to make purple? (She encourages investigation.)

What colors did you mix... and what color did it make? Brown? OK, what colors should we try next? I'm sure we can figure out how to make purple if we keep experimenting.

(She encourages testing and perseverance.)

Let's think about what colors are closest to purple...blue? Yes! I wonder what color we could add to change the blue to purple?

(She challenges her child to think and investigate.)

We added some red to the blue, but it still doesn't look like purple. Maybe we should try some more and see what that does? What do you think?

(She models how to question and investigate so her child can learn to do the same.)

The mom couldn't answer the question, but she did something much more valuable: she encouraged her child to be curious, to observe, and to think more deeply about how to experiment.

What if your child comes up with the wrong answer?

- Making mistakes and being wrong about why something is the way it is, is all part of learning and growing up. Sometimes you'll want to help your child gently understand where his/her thinking may have gone wrong. But other times, there's no need to correct your child. Something your child didn't understand during the Week 1 of colors may become clear in Week 3.
- What's most important for your child's development is not getting the answer right but learning how to think and express ideas.

Recommended Books on Colors

Books, both nonfiction and fiction, are another great way for children to learn about colors. If your organization can share books with parents, there are some recommendations below. There's also a separate Parent Handout on the website you can print out and distribute.

A few tips for reading aloud you can share with parents:

- Talk about the picture on the cover. Point to and read the title and author.
- Ask your child to predict what might happen in the story.
- Read slowly so children can understand and enjoy the rhythm of the words and explore the pictures.
- Get dramatic! Use different voices and expressions to make the story fun.
- Pause while you read to ask questions and make comments. Talk about colors and anything that captures your child's interest. Repeat or talk about any words that might be new to your child.
- When you are done, ask questions about what you read and ask how your child felt about the characters and the story. That will help him/her think about and remember it later.
- If your child enjoyed the book, read it again, either now or later. Children make new discoveries each time.

Hoban, Tana. *Is It Red? Is It Yellow? Is It Blue?* Greenwillow Books, 1978. Photos of the colors around us.

Katz, Karen. *The Colors of Us.* Henry Holt and Company, 2007. Lena learns that everyone's skin color is different and discovers how each one is beautiful in a different way.

Gonzalez, Maya Christina. My Colors, My World/Mis colores,

mi mundo. Children's Book Press, 2007. A girl shows off the many colors of her southwest home.



Lionni, Leo. A Color of His Own. Alfred A. Knopf, 1975.

A chameleon wishes he had his own color like all the other animals, and finds his answer in a new friend.



Lionni, Leo. *Little Blue and Little Yellow.* Harper Collins, 1959. Two special friends find out what color blue and yellow make.

Luján, Jorge and Grobler, Piet. *Colors!/¡Colores!* Groundwood Books, 2008. A poetic exploration of colors in the world.

Shahan, Sherry. *Spicy Hot Colors/Colores picantes.* August House, 2004. A colorful review of objects found in Latin culture.





Tullet, Hervé. *Mix it Up!* Chronicle Books, 2016. Watch colors splatter, mix, and transform, all at the touch of a finger.

Walsh, Ellen Stoll. *Mouse Paint.* Voyager Books, 2005. Three playful mice dip themselves into red, yellow, and blue paint and mix colors.

More Science Fun: PEEP Game Apps

If parents have room on their phones for additional apps, encourage them to download these free PEEP game apps, which are closely related to the activities parents and children will do each week. The game apps can be found in the app store along with the PEEP Family Science apps. If children easily complete the first round of the game, they are offered a harder level in the next round. The games keep children within their own comfort levels, nudging them to more challenging levels only when they are ready.

Share these tips with parents:

Your children will be using media their whole lives. Help them use it at home in positive ways, right from the start!

- The American Academy of Pediatrics recommends that you limit screen time to one hour a day for children ages 3 to 5.
- Avoid media during mealtimes and before bed.
- Share the experience with your child. Watch, play, and talk together. Children can't learn from watching media alone—they need an adult to help them understand what they are seeing and connect it to their daily lives. Talking together about what you are watching makes a big difference!



Week 2: Paint Splat

Help Quack mix paint to make the colors Chirp wants! www.peepandthebigwideworld.com/en/kids/pathways/4/lightand-color/games/10/paint-splat



Week 4: Which Fish?

Quack and his fish friends make patterns with colors! peepandthebigwideworld.com/en/kids/games/16/which-fish



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