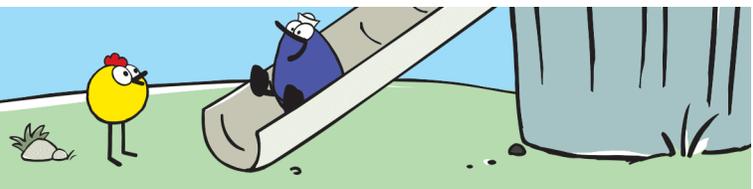


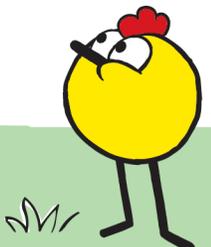
# Explore RAMPS

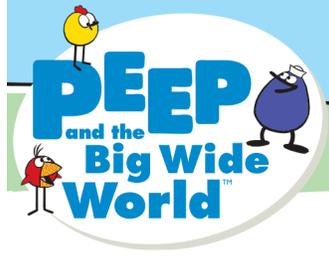


## TRAINING HANDOUTS

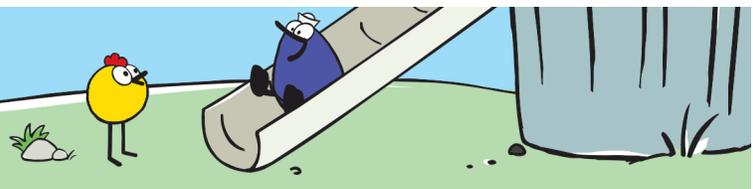
Photocopy these handouts for participants:

- **Teaching Strategy Handouts**  
(pass each one out after your session on the strategy)
  1. Learning Environments
  2. Science Talk
  3. Documentation and Reflection
  4. Individualized Instruction
- **Homework Assignment** (pass out at the end of Part I of the training)
- **Training Evaluation** (pass out at the end of your training)





# Explore RAMPS



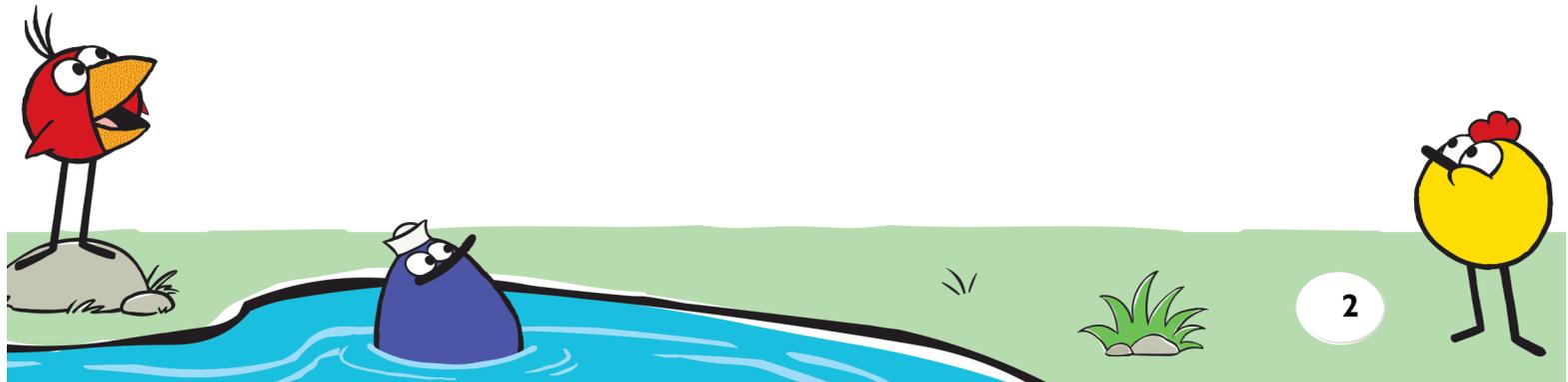
## Teaching Strategies Learning Environments

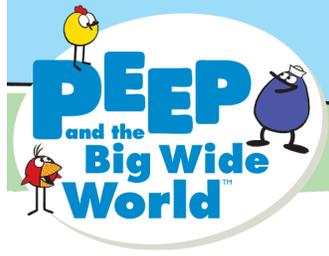
### What Is an Effective Learning Environment?

- **A safe and well-organized learning environment** is full of sensory (visual, touch, hearing, and kinesthetic) opportunities.
- **It offers children a variety of experiences**, giving them the freedom to explore what captures their attention. For the family child care educator, it can include spaces in the home, the yard, or local park/outdoor play areas.
- **Traditional learning centers**, like a library corner, block center, or dramatic play area, can be modified or changed so they serve as exploration centers for ramps.
- **Temporary, flexible spaces** can also be created or replaced as needed—whether they are indoor or outdoor areas. A feature of many family child care homes is the flexibility to set up areas that can be changed back to family spaces at the end of the day or week.
- Learning environments for exploring ramps can be used for **specific guided activities** or opened up for **free exploration**.

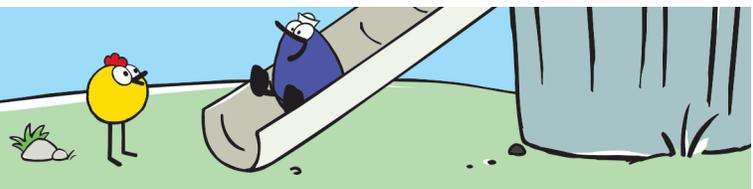
### How does a learning environment encourage science exploration?

- **Science exploration is about direct experience and hands-on investigation.** Learning centers allow children to:
  - explore on their own time and in their own way.
  - look at, touch, and manipulate objects.
  - build their understanding by repeating an activity many times.
- **A variety of different spaces and materials can** contribute to learning, including:
  - open spaces for energetic explorations.
  - quiet spaces for reflection, reading, or time by oneself.
  - yards and playgrounds for outdoor investigations.





# Explore RAMPS

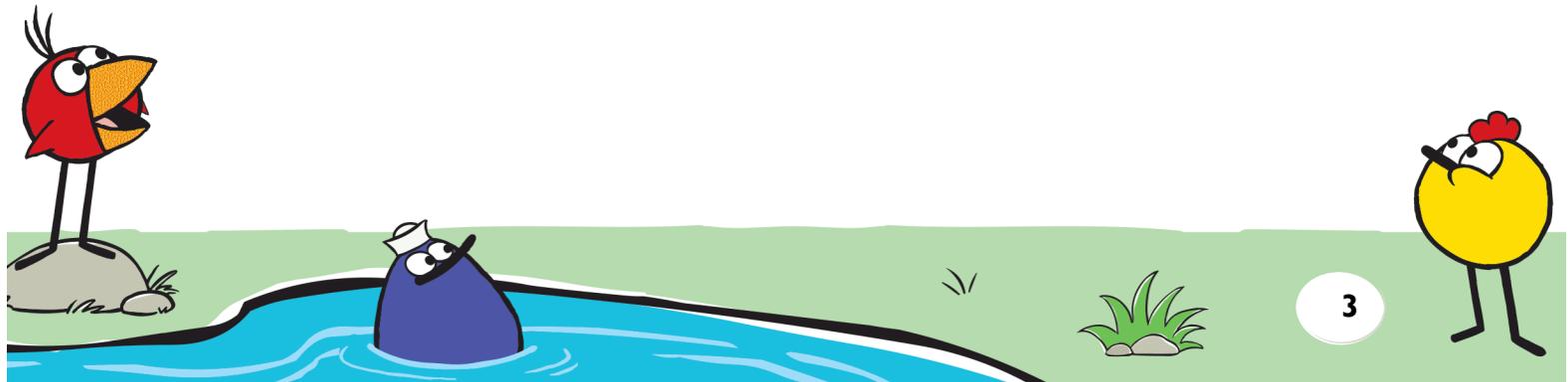


## Teaching Strategy: Planning a Learning Environment

### *Why is planning a learning environment an effective teaching strategy?*

A well-organized, intentionally planned learning environment encourages children to explore with specific materials and learning goals in mind.

- **Modify your permanent learning spaces or create flexible ones.** Your permanent learning centers, such as a blocks, dramatic play, art, or library center, can be tailored to your science explorations.  
**Example:** Add paper towel rolls, cardboard, and tape to your block area for ramp building. Hang up photos of wheelchair ramps, moving van ramps, highway on-ramps, skateboard parks, and roller coasters in your art center to inspire children's drawings and diagrams. Add ramp materials to your outdoor play area so children can use slides, seesaws, hills, slanted sidewalks, sandboxes, and hills to explore ramps.
- **Use learning environments for both guided activities and free exploration.** A learning center can double as a setting for an educator-guided activity that focuses on a specific investigation as well as one that offers free exploration.  
**Example:** You might set up a ramp and then leave out several objects for children to test on the ramp. Set out paper and pencil and ask children to draw a picture of all the objects that rolled on one side of the paper and all the objects that slid on the other.
- **Work with what you have.** Creating a rich learning environment in which to explore ramps doesn't take a lot of additional materials. After all, ramps and inclines can be found all around us—a hill or a playground slide make great ramps and can lead to hours of exploration and fun.





# Explore RAMPS



- **Organize the space and materials.** To help you create a dynamic environment for science exploration, ask yourself some questions that will help inform the activities you choose, the spaces you set up, and the materials you make available to children:
  - What experiences do I want children to have?
  - What do I want children to learn about ramps?
  - What and how will I engage the children? What are their interests, abilities, and cultural backgrounds?
  - How much space does the activity require?
  - Is the activity messy?
  - Will the activity work differently indoors and outdoors?
  - What other props will support children’s learning about ramps?
  
- **Place materials in accessible locations.**
  - If materials such as paper towel rolls, cardboard, blocks, and tape are easily reachable, in appropriate containers, and at the right height for children, they will feel comfortable working and will be drawn to experiment.
  - Simple rules will help them develop a sense of responsibility for the materials.
  
- **Plan for messes.**
  - Science can get messy. Make sure there are clearly marked boxes and bins for children to return material when they are finished. Marbles in particular need to be stored after each use and kept away from the smaller children.
  - Children need the freedom to explore materials in a center with as few restrictions as possible. Planning for mishaps helps eliminate some of the warnings and reprimands that can interfere with a young scientist’s discoveries.
  - Asking children to help in any cleanup can increase their sense of responsibility.
  
- **Make the most of your outdoor spaces.** Not all home-based educators have access to a yard, but local parks and other outdoor spaces can provide children with dynamic learning experiences.

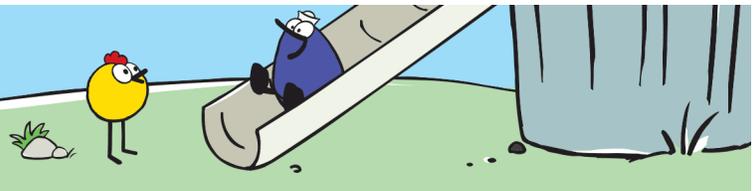
**Example:** Children can bring objects to the playground and roll/slide them down the slide. Before each object is released children can predict whether it will roll, slide, or stay put.

**Example:** Encourage children to be on the lookout for hills, mounds of dirt or sand, and other natural inclines that would make a good ramp.





# Explore RAMPS



## Your Experiences

- What types of permanent indoor learning environments exist in your home child care?
- What is your outdoor space like? What activities seem to work best outdoors?
- What kinds of temporary learning centers have you created—indoors and outdoors?
- Does your space present any challenges? How have you overcome them?

## Teaching Strategy: Offering Choices

### *Why is offering choices an effective teaching strategy?*

Children appreciate options. Flexibility and choice are key when setting up a learning space. Offer children different and varied experiences, and let them follow their interests. This strategy not only helps address a child's individual needs, it also helps children to become independent learners.

## Spaces

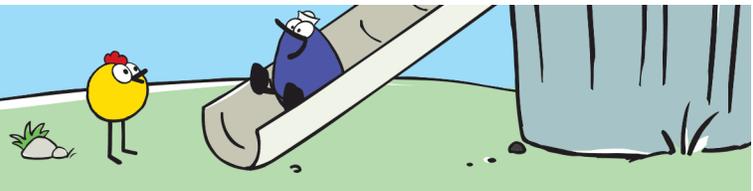
You already have learning centers in your home—spaces designed for specific types of exploration. Help children become familiar with what happens there and the different choices available to them. You can use cardboard boxes, rugs, or even chalk or tape to create temporary learning spaces, both indoors and outdoors. Learning areas can also be tables with chairs or just a corner of a room. You can adapt these spaces for learning about ramps in a variety of ways:

- **Open space:** This learning area (indoors and outdoors) allows children to move their bodies. Children can practice rolling and sliding with their own bodies. It also gives them plenty of room to create long and elaborate ramps so that objects can roll or slide farther distances.
- **Water area:** The kitchen sink or water table is a great place to experiment with moving water. Just like a ball, water flows more easily and more quickly down a ramp. Children can pour water down plastic tubes and see what happens when they hold this tubing at different angles.
- **Rug:** This is where children can get comfortable for read-alouds, browsing books about ramps, and building large ramps in a big, open space. It also allows them to experiment with how far a ball travels on different textured surfaces, like a rug versus a tiled floor.





# Explore RAMPS



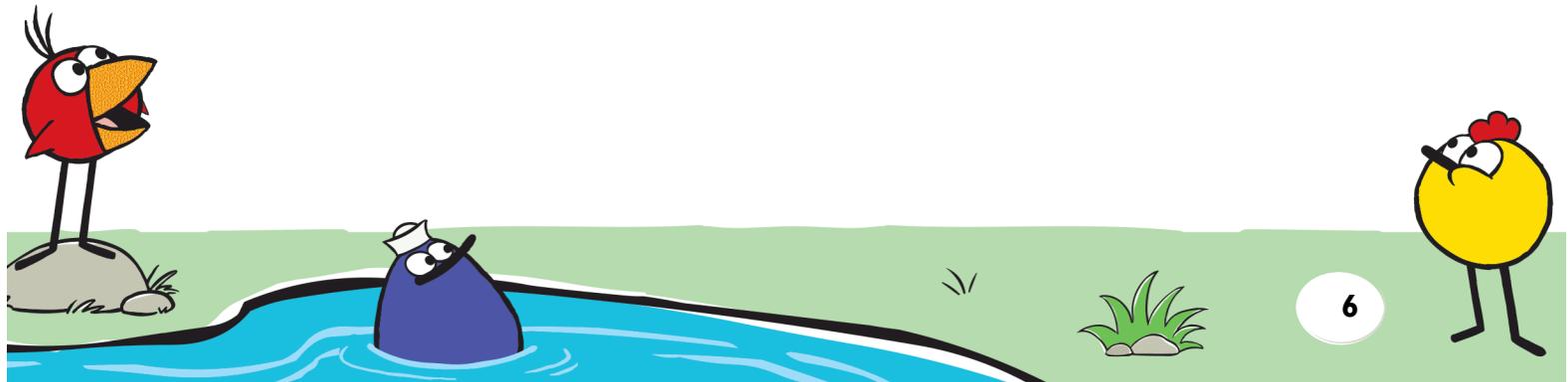
- **Table:** Tables provide a natural location for making small ramps and sorting objects into "roll, slide, and stay put" piles. It's also a good starting place for a ramp—children can tape flat cardboard or tubes to the edge of the table.
- **Library area:** In the library area, children can browse through and read more ramp-related books.
- **Art area:** Here children have access to easels, smocks, paper, crayons, markers, and paints. They can draw their ramps before or after they create them or make up imaginary ones, like fantastical roller coasters.
- **Quiet area:** Setting aside a quiet area gives children a place to spend a few peaceful moments looking around as others experiment.
- **Sensory area:** The sensory area is ideal for hands-on activities. Children can explore ramps with different textures—rugs, bubble wrap, corrugated cardboard, towels, plexiglass, and tiles make for interesting ramp experiments.
- **Display area:** Use a bulletin board, wall, and/or table to display art, charts, and works in progress, such as home made ramps.

## Materials

Offer a choice of stimulating and interesting materials. Different types of materials encourage different types of exploration.

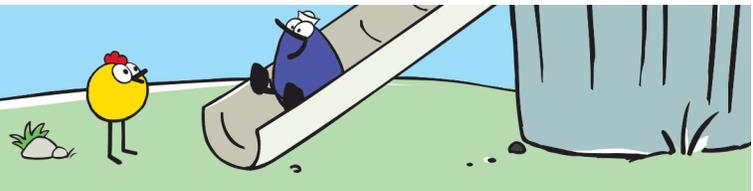
- **Flat ramps:** flat pieces of cardboard, foam core, or wood
- **Tube ramps:** toilet paper and paper towel tubes, cutting some lengthwise in half to make open troughs; poster tubes; PVC tubes; and wooden molding of different lengths, if available
- **Flexible tubes:** foam pipe insulation, some of which can be cut in half to make open troughs; hoses from sump pumps or shop vacs, cut into 4- to 6-foot lengths
- **Objects to roll or slide down the ramps:** markers, rolls of duct tape, balls of various sizes and weights, toy cars, paper clips, plastic utensils, paper plates, etc.
- Boxes and other objects for supporting the ramps

**Remember to be selective, however**—too much choice can be overwhelming for young children.





# Explore RAMPS



## Your Experiences

- What types of learning centers have been most effective in your setting?
- What have you done with your space to make it varied and to stimulate the curiosity of children with different interests and abilities?
- What simple materials have you used to define spaces (e.g., a beach towel or piece of cardboard)?
- What might you add/change after hearing about these ideas?

## Teaching Strategy: Encouraging Exploration Throughout the Day

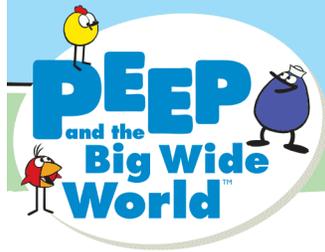
### *Why is encouraging exploration an effective teaching strategy?*

- Science is all about investigation and discovery; it's hands-on and requires that children learn through experimentation and trial-and-error.
- As you explore ramps, make sure some of your learning environments support open-ended exploration, so children can follow their own interests, explore further, and make new discoveries. (At other times, you can use this same learning center as the setting for guided activity focused on a specific investigation.)

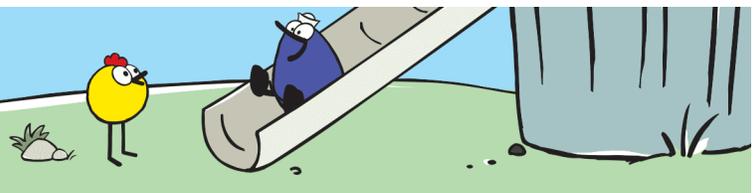
### *The following strategies will help encourage learning everywhere:*

- **Allow lots of free exploration.** This may lead children down new and perhaps unexpected paths, and help them become invested in learning about ramps. **Example:** You may have a learning center with a ramp and an observation journal for children to write and draw about the things that they notice.
- **Follow children's lead.** Science exploration works best when you are following children's interests and addressing their questions—that guarantees they'll be engaged and motivated. They will also become more confident in their abilities, and develop leadership skills and independence. **Example:** If children are playing outside and a child notices a hill that she thinks would make a good ramp, call everyone over and encourage them to test it out by rolling balls and even their own bodies down the hill. Take photos showing children's experiments and create a gallery in the classroom.





# Explore RAMPS



- **Integrate ramp learning throughout the day.** Everyday routines offer an easy way to explore ramps.  
**Example:** During snack time, roll a grape down a place mat. Change the angle of the mat to make it more and less steep and see how this affects the way the grape rolls.
- **Use the whole space as a palette for learning.** Your environment and the world right outside your doors offer plenty of opportunities for learning about ramps. Have children look for ramps indoors or outdoors, and encourage them to build ramps spontaneously wherever they are, using books, boxes, pillows, or furniture.

## Your Experiences

- Can you share a time when you followed a child's lead and a spontaneous learning moment occurred?
- In what surprising places have learning moments happened in your program?
- How do you encourage learning and discovery during your daily routines—while taking a walk, for example, washing dishes, or setting the table for lunch?
- What might you add/change after hearing about these ideas?

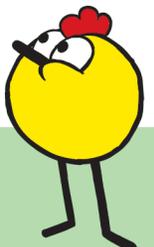
## More Resources

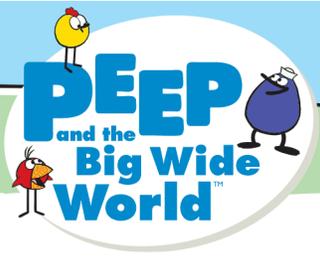
### **For more information on learning environments**

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### **For more videos and information on other topics**

In addition, the Web site offers Teaching Strategies and videos on other professional development topics: Documentation and Reflection, Individualized Instruction, and Science Talk.





# Explore RAMPS



## Teaching Strategies Science Talk

### What is Science Talk?

- **Language is crucial to learning and communication** in all subjects. Science is no exception. As children investigate and explore ramps, they need to talk about their work just the way scientists would—this is "science talk."
- **Science talk happens when** children ask questions, make comparisons and predictions, share and discuss results, and learn new words to describe what they are seeing and doing.
- **Examples:**
  - I think this ball is going to roll really fast down this ramp.*
  - This cup rolled down the ramp, but this block slid.*
  - Some things don't roll or slide. Some things stay put, like this eraser.*
- **One misconception** educators sometimes have is that science talk needs to sound "scientific." As you can see from the examples above, that's not always the case—but they clearly show a child's active and curious mind predicting, observing, and making distinctions.
- **Science talk can happen any time and any place**—not just during science explorations. It happens during snack time as children compare amounts of water in their cups or the colors of their apples. It happens on a walk outside as children inspect an anthill or crunch leaves.

### Why is science talk important?

- **Language is a tool for thinking and learning as well as communicating.** When children use science talk, it helps them develop understanding, share ideas, build vocabulary, and increase their listening and comprehension skills.
- **Science talk helps children to go deeper in their science explorations,** by encouraging them to think through an idea, ask a new question, or try something new. Science talk is not just a way of communicating—it is part of how we think and learn about the world.





## Teaching Strategy: Modeling Science Talk

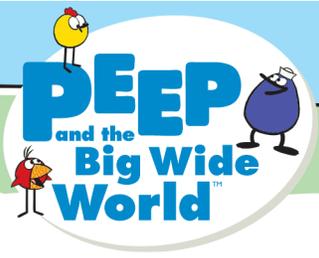
### Why is modeling science talk an effective teaching strategy?

- By modeling how to pose questions, keep a discussion going, or how to narrate your actions and thoughts, you help develop children's abilities to listen, reflect, and communicate.
- You also help them build vocabulary and discover the power and importance of words.

### Here are some ways to model science talk while exploring ramps.

- **Compare and contrast the way different objects move down a ramp.**  
**Example:** *Look, that ball rolled down really quickly, but that book didn't roll at all—it slid. I wonder why? Let me feel the book. It's smooth and flat. The ball is smooth and round.*
- **Let children know what you're wondering about.**  
**Example:** *You might hold up two different sized balls and say, I wonder which one of these will go down the ramp faster. How do you think we can figure that out?*
- **Incorporate new words as children do hands-on activities.**  
**Example:** *You might introduce the word texture as you move objects down a ramp. I wonder which ramp this block will slide down more easily? This ramp has a smooth texture and this one has a bumpy texture.*
- **Narrate your actions so children learn to describe aloud what they are doing.** Use action words such as *observe, compare, change, discover, and notice.* Use descriptive words such as *flat, steep, smooth, rough, bumpy, fast, slow.*  
**Example:** *You might say, Let's compare what happens when we roll these two balls down the ramp. I wonder whether one will go faster than the other? I notice that one of these balls is much heavier than the other. I wonder if that will make a difference in how fast it goes. Let's test it out. When you investigate more closely, children will be encouraged to do the same.*





# Explore RAMPS



- **Use rich, descriptive language.**  
**Example:** *Look! This cup is sliding down the ramp. It's moving quickly and making a swishing sound.*

## Your Experiences

- Can you share some of your own stories about modeling science talk? What's been successful? What's been a struggle?
- What are some ways you've encouraged children to enrich their language and incorporate science vocabulary?
- What did you learn from the video that you might try in your own teaching?

## Teaching Strategy: Asking Open-Ended Questions

### *How does asking open-ended questions encourage science talk?*

- An open-ended question is one that usually can't be answered with just one or two words, or with a simple *yes* or *no*. They are phrased in a way that encourages children to explain and expand upon their thoughts.
- As children answer open-ended questions, they build expressive language skills, reflect on what they're observing, and go deeper into their explorations.

### *Composing open-ended questions takes a little practice.*

- Most people discover that it's an acquired skill.
- It's a good idea to come prepared with a list of such questions when leading a science activity, until it becomes a natural part of your teaching.

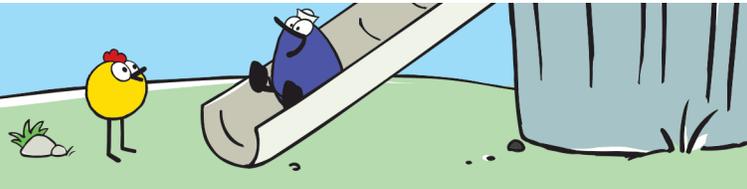
### *Some examples:*

- **How questions:** *How do you think we can turn this piece of cardboard into a ramp? How is this object different from that object? How do you think we can make this ramp steeper?*
- **What questions:** *What do you notice about this ramp? What's different about it from that one over there? What do you think would happen if we put this block on the ramp?*





# Explore RAMPS



- **Do you think . . . questions:** The use of “Do you think...,” when relevant, encourages children’s thinking—instead of focusing on getting the right answer. *How high do you think our ramp should be? Which parts of our body do you think we could use as a ramp? Why do you think that?*

## Open-ended questions aren’t always the answer.

- Keep in mind that they aren’t always the best choice in all situations and for all children. Some children may need more structure and guidance.  
**Example:** Instead of asking, *Can you describe this ramp?*, you might get more from some children by asking an either/or question: *Do you think this ramp is steep or flat? Why do you think so?* That way, they begin to learn to make distinctions and comparisons.

## Your Experiences

- Do you intentionally use open-ended questions with children? What’s your experience been?
- What differences have you noticed in the way children answer when you ask open-ended questions?
- Since formulating open-ended questions takes a bit of practice, let’s try turning a few yes/no or either/or questions into open-ended ones:

*Do you think this toy will roll or slide down the ramp?  
When that ball hit the obstacle, did it stop moving?  
Is this ball of clay sticky or smooth?*

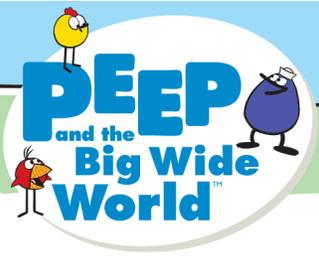
## Teaching Strategy:

### Encouraging Science Talk Among Children (15 min.)

## How does encouraging science talk among children benefit your teaching?

When you select an activity that excites them, or have a discussion that piques their interest, you encourage children to participate more actively and to spontaneously talk about what they are doing and thinking.





# Explore RAMPS



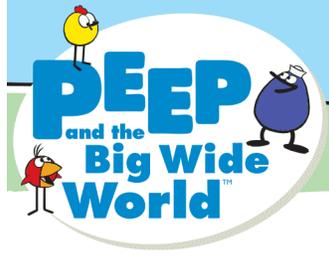
## Here are some ways to engage them:

- **Find out what excites children.** Take the time to observe them. Notice their interests and incorporate these interests into your activities.  
**Example:** Have children make games and rides out of ramps—roller coasters for marbles, ramp races, or bowling games.
- **Personalize the learning by incorporating children's experiences** into the things you are doing.  
**Example:** You might ask children to see if they can discover any ramps in their homes and tell you about them the next day.
- **Promote science talk among children.** By encouraging children to discuss things together, you give them the chance to teach and guide one another. Through their collaborations, children often take the learning in new directions you might never have anticipated.  
**Example:** You can pair children up and present them with a problem that they have to solve together, such as, *What's one thing you can change about this ramp so that it will work even better?*
- **Introduce mystery.** Children always have a lot to talk about when there is a mystery involved. Mysteries engage children in science talk because they inspire children to wonder, make predictions, and to "find out."  
**Example:** Say, *Did you know there are ramps hiding outside? They are in the grass, trees, and dirt and also on the playground. Let's go on a hunt and see if we can find them.*

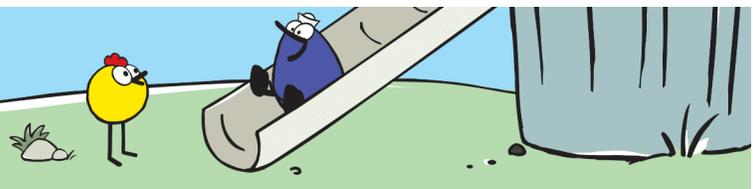
## Your Experiences

- Are there certain activities that seem to stimulate children's conversation? How do you get children curious, excited, and asking questions?
- What are ways you relate science explorations to children's own lives? How has personalizing the learning been effective?
- How do you encourage children to talk to each other about their science explorations? Have any challenges come up, and how have you handled them?
- Presenting children with a mystery is a great way to get them talking and wondering. What other approaches have worked for you?





# Explore RAMPS



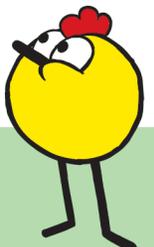
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### ***For more videos and information on other topics***

In addition, the Web site offers Teaching Strategies and videos on other professional development topics: Learning Environments, Individualized Instruction, and Documentation.





# Explore RAMPS



## Teaching Strategies Documentation and Reflection

### What is Documentation and Reflection?

- Documentation is the process of recording experiences.
- Using documentation, children and educators can look back on their experiences during an activity and think more deeply about them.

### What are some types of documentation?

- **Child-generated documentation** happens when children record their own learning. It can include:
  - drawing a picture of what they did
  - taking photos of their work
  - explaining what they're doing and what happened while you transcribe their words
- **Educator-generated documentation** can include:
  - creating charts
  - making notes
  - taking photos
  - recording audio
  - shooting video

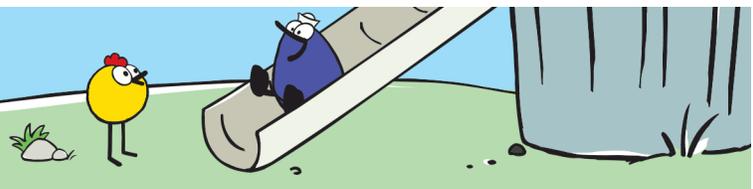
### Why is documentation and reflection important?

- **Children don't learn from their experiences alone.**
  - They need to think about what they have done and talk with others.
  - They will often notice new things about their work the second or third time they review it.
- **It gives children a sense of ownership.**
  - To see their work documented gives children a sense of ownership—making it much more likely that they will remember, apply, and build upon this learning.





# Explore RAMPS



- **It captures the process of scientific inquiry.**
  - Science is a process that includes predictions, testing, questioning, problem solving, experimentation, and sharing ideas. Documentation helps capture the process of scientific inquiry, not just the outcomes.
  - It allows children to see the steps they took.
  - Children begin to learn that an important part of science is collecting, describing, and recording of data.
- **Language skills are strengthened.** Commenting on documentation asks children to:
  - clarify their ideas
  - explain their reasoning
  - communicate their perspectives, both to themselves and to others
  - use and repeat new scientific words and incorporate them into their vocabulary
- **It is an invaluable teaching tool,** allowing you to:
  - develop activities that respond to the needs of each child
  - communicate with parents and share concrete examples of children's work
  - show children the connections between the different activities and ideas they've been exploring
  - understand an individual child's skills, growth, struggles, or misconceptions
  - assess children's thinking and your own teaching

## Teaching Strategy: Encouraging Children to Create Documentation

### ***Why is encouraging children to create documentation an effective teaching strategy?***

By helping children document what they are doing, you make it possible for them to reflect on their work and to understand and make sense of their experiences.

### ***Children can be encouraged to document their work in many different ways:***

- **Drawing pictures** is an ideal way for children to make their learning visible. **Example:** By drawing pictures of their ramp constructions, children can talk about them even after they're dismantled.





- **Charts, graphs, and models** allow children to “see” or visualize their thinking and to compare their results with peers.  
**Example:** You might have them draw pictures after completing an activity that compares two ramps with different levels of steepness. Their drawings can show how far a ball traveled down each ramp.
- **Dictating thoughts** for you to transcribe (usually in an abbreviated form) helps children learn about their thought process. Children learn about their thinking through the act of communicating.  
**Example:** You might write down children's words as they describe how different objects move down a ramp. Later you can read their words back to them as they reflect upon their experiences with ramps. Reading a child's dictation back to her to check for accuracy further cements this process.
- **Recording, videotaping, or photographing** a child's demonstration or explanation gives children perspective on what they have accomplished.  
**Example:** The teacher might videotape children's ramp experiments. If children are trying to send a ball up and down a hill made from flexible tubing, you might videotape their earliest attempts and their final, successful attempt. Later they can watch the video and talk about how they tested and adjusted the ramp until it worked the way they wanted it to.

## Your Experiences

- What kinds of documentation do you typically do with children?
- What types of documentation do children seem most interested in creating—do some forms come more naturally to them than others?
- Have you run into any challenges while having children document their explorations? What kind?

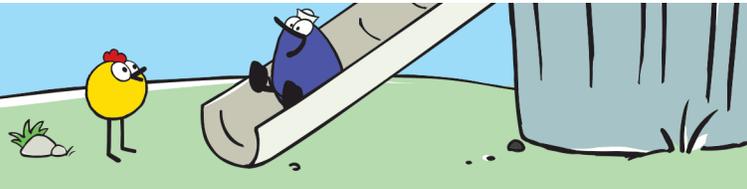
## Teaching Strategy:

### Using Documentation and Reflection as Teaching Tools

#### *How does using documentation and reflection benefit your teaching?*

Documentation will engage children, deepen their learning, and make connections between the different science activities you've shared together. It will spark conversation and get children to share what they did and learned. It will also help you decide how to support the child's learning.





## *There are many benefits to documenting children's work:*

- **It helps children remember, share, and reflect** on their ideas and experiences. Looking at a photo or chart helps children recall their thoughts and ideas about what they were pursuing.  
**Example:** To document how a ramp is made you might take photos as children use tubes, blocks, chairs, and tape to make ramps. Later you can present children with the photos and have them order them step-by-step. Next, children can describe each photo and put them together as a "how to make a ramp" book.
- **It connects ideas and builds on learning.** Documentation helps children see connections between the different activities they've done and encourages them to think more deeply about them. Charts are especially good for this.  
**Example:** You might begin a week of exploration with a chart called "Roll, Slide, or Stay Put." Children can test objects to see if they roll or slide down a ramp—or "stay put" on it. At the end of the day they can add their findings to the chart. Returning to the chart each day helps them think back on the experiments they have done and begin to make connections between their findings.
- **It shows that you take children's explorations seriously.** Recording something gives it importance.  
**Example:** You might videotape children as they hunt for ramps outside. Invite children to describe the ramps that they find and how they work. The very fact that you've taped their explorations shows children that you consider their explorations valuable.
- **It helps with lesson plans and in understanding the needs of each child.** Documentation is key in helping you plan instruction and future activities. With your notes, transcriptions, and photos, you can see what really catches the children's attention. What do they want to know more about? What was hard for them to grasp? Did they seem to engage more in indoor or outdoor activities about ramps?
- **It enables specific communication with parents or caregivers.** Here are a few activities you can use:
  - Send home children's drawings and transcriptions.
  - Set up a bulletin board with photos, charts, and drawings that children can show their caregivers and talk about when it's pick-up time.
  - Create a portfolio for children that shows evidence of their growth and learning over time.
  - Strengthen the home/school connection by encouraging parents to explore ramps with their children at home.





## Your Experiences

- Do you use cameras, video, or audio recording devices when you document? How has technology helped you? Have you encountered any problems with it?
- In what ways do you use “low-tech” resources, such as written notes, to document learning?
- Have you faced any challenges when documenting children’s learning? If so, what were they?
- What benefits of documentation have you noticed?

## Teaching Strategy: Reflecting Together

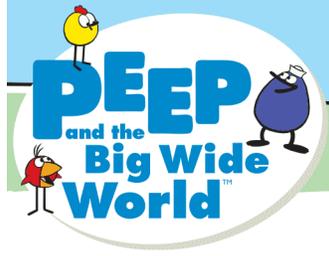
### *Why is reflecting together an effective teaching strategy?*

After children document their work, it’s essential that they reflect on it: that’s where much of their understanding about what they experienced takes place. As you reflect together, you strengthen children’s reasoning abilities, help them consider others’ perspectives, build their communication skills, and learn to better understand their thinking and learning.

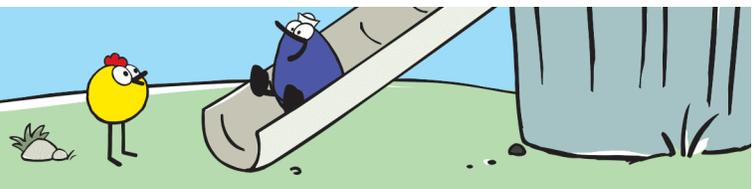
### *There are many ways to promote reflection:*

- **Children sharing ideas**
  - Have a child present her documentation in a group and encourage the others to ask questions or comment on something they find interesting.
  - An engaged and receptive audience will make the child who is presenting feel excited and proud to be showing his work, and more confident in expressing ideas and conclusions.
  - The audience also benefits by working on their ability to listen and sustain attention, and by developing social skills in taking turns.
  - Group reflection encourages children to consider new perspectives.
  - Children may become inspired to try something new next time.
- **One-on-one conversations**
  - Not all children will want to share their reflections in a group.
  - Conversations with you during or after a child has created documentation gives you the chance to explore with a child on his or her own terms.





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- **Displaying documentation**
  - Post on bulletin boards, poster board, or a tri-fold board.
  - Create a “save it” shelf, where children keep their creations, or a class album full of photos, children's drawings, and children's words.  
**Example:** Use post-it notes to write what children have to say about their ramps and put the notes directly on or next to the ramps.
- **Including parents in reflection**
  - Consider inviting parents to come and observe as children talk about their creations.  
**Example:** You might even invite parents to come and observe as children talk about the ramps that they have made. You can create a ramp gallery and have children describe their different creations and how they work. Encourage children to ask the adults, *Do you have any questions about this ramp?* As children respond to their families' questions, they'll be reflecting upon their learning.

## Your Experiences

- What types of documentation have you found most effective for helping children to reflect?
- How would you compare guiding group reflection and reflecting with children individually? Any success stories to share?

## More Resources

### **For more information on documentation and reflection**

There are additional Teaching Strategy PDFs on the PEEP Web site along with instructional videos. These illustrate documentation and reflection related to the other PEEP science units: Color, Water, Shadows, Plants, and Sound.

### **For more videos and information on other topics**

In addition, the Web site offers Teaching Strategies and videos on other professional development topics: Learning Environments, Individualized Instruction, and Science Talk.





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## Teaching Strategies Individualized Instruction

### What is Individualized Instruction?

- It's a way of teaching that takes into account each child's unique characteristics, including age, developmental stage, interests, and learning styles.
- With an awareness of children's differences, an educator can plan learning centers and activities, offer instructions or explanations, and encourage children to express their ideas and experiences in a way that's effective and appropriate.

### Why is individualized instruction important?

- Responding to children's varied needs, experiences, and interests is critical to teaching.
- Science is well suited to individualized instruction because it offers children the chance to explore in hands-on ways at their own level.
- By carefully observing children, educators can plan a wide variety of activities that address a range of skills and learning goals.
- Recognizing children's unique learning abilities, interests, strengths, and challenges will increase their engagement, help them to think and learn, and make them feel valued and competent. Children who are recognized in this way are more likely to persist in questioning and problem solving.

### Teaching Strategy: Planning for Children of Different Ages and Developmental Stages

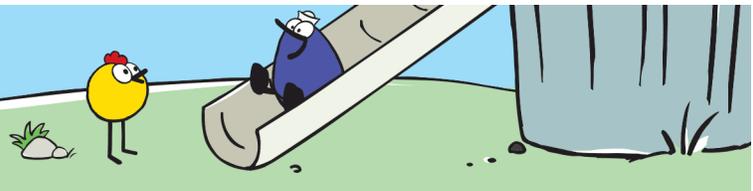
### Why is planning for children of different ages and developmental stages an effective teaching strategy?

- In a family child care setting, children's ages often vary greatly. It's not uncommon for an educator to care for a toddler and a five-year-old, and it's a challenge to offer group activities that work for children at widely different developmental stages.





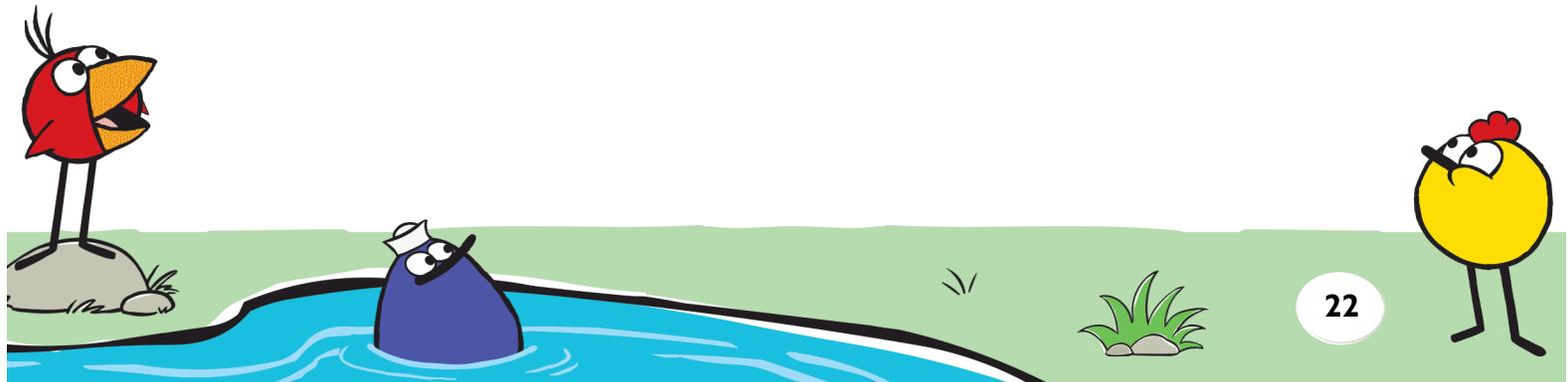
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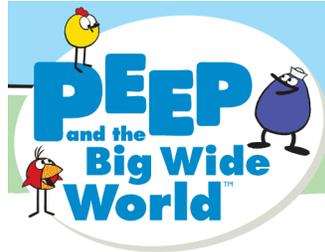


- Even among children of similar ages, not all mature at the same rate. Children who are close in age can be quite different in terms of development. Attention span and interest level will affect their ability to focus.

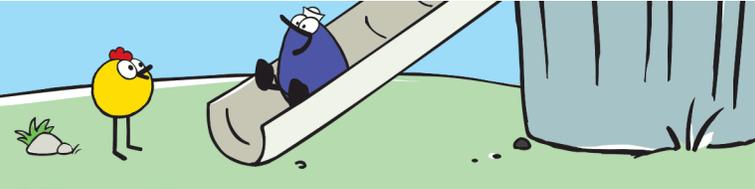
## ***Some ways to take age and development into account:***

- **Explain the same concept in different ways.**
  - For some children, a simple explanation will be sufficient. For other children, you will need to ask many questions to gauge their understanding.
  - Even children who quickly grasped the concept can benefit from hearing different explanations and watching demonstrations.
  - You can encourage peer-to-peer learning—having children explain concepts to each other.
  - The more ways you explore an idea with children, the more likely they will be able to understand and remember it.
- **Adjust the materials.** During science explorations, children need to be “hands-on” at whatever stage of motor skills development they’re at.  
**Example:** Taping flexible foam tubes together to make ramps is exciting and fun, but younger children may not have the necessary coordination. Instead, have a few tubes taped together ahead of time for them to use.
- **Offer independence—or more support.**
  - **More independence.** Some children may finish an activity quickly. Have additional materials and extension activities ready.  
**Example:** If you are building roller coasters out of flexible tubes, you can challenge some children to build more complex versions: a roller coaster with two hills, a roller coaster with a hill and a sharp turn, or the ultimate challenge, a loop-de-loop.
  - **More support.** Some children may need more guidance and thrive on the support you give them.  
**Example:** Younger children may not have the motor coordination to manipulate flexible tubing, tape it in place, and have it work in the way they expect it to. Work closely with them, asking questions and discussing what you are doing as you help them set up the tubing.





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- **Engage the youngest children.** Family child care educators often have an infant or toddler in tow while leading science explorations with preschoolers. There are always creative ways to make it an interesting and fun learning experience for the very little ones.  
**Example:** Find a hill or slope outside and encourage little ones to send different sized balls down this natural ramp.
  
- **Plan different social groupings.** The way you group children during activities can enhance individualized learning.
  - **Pair children so that an older child mentors a younger one.** Younger children will be inspired to push their abilities when they see older children in action. Older children will develop language skills and social skills (and a sense of pride) as they explain things to a younger partner. They may also learn how to share and compromise.  
**Example:** Have one child send objects down a ramp while the other documents the findings in a graph or sorts the objects into "roll, slide, stay put" piles.
  - **Working with groups of the same age is also important.** There will be some activities that you'll only want to do with older children and some that will work best with a younger crowd. To ensure that this happens, you might set aside a time each week for same-age peers to collaborate.
  - **Offer whole-group activities for mixed ages.** Most science activities easily work for all ages and give children the chance to collaborate. These activities also help children learn from one another, develop patience, and appreciate others' perspectives.  
**Example:** Try having the group work together to create one long ramp that carries an object across the entire room.
  - **One-on-one attention.** Find opportunities throughout the day to check in with individual children to gain insight into their abilities, strengths, and weaknesses. Connect with students who may be having difficulty with an activity or trouble interacting with other children—your attention can make all the difference.

## Your Experiences

- What are some of the differences you notice among the children in your program?
- How have you adapted activities to meet the needs of children who are at different levels of development? What have been your greatest successes? What has been a struggle?
- What are some ways you make learning experiences engaging for infants and toddlers?





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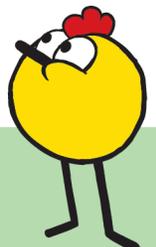
## Teaching Strategy: Planning for Children with Different Interests and Learning Styles

### *How does planning for children with different interests and learning styles benefit your teaching?*

- When children are given opportunities to follow their own interests and learn in their own ways, their engagement and sense of personal investment in the learning deepens.
- An educator's awareness of children's passions, motivations, temperament, strengths, and weaknesses can significantly affect how a child learns and grows.

### *Some ways to address children's different interests and learning styles:*

- **Get to know each child.** Engage with children to learn their interests, strengths, and weaknesses. The best way to do this is to observe children in action.
  - **Keep an observation journal** on hand. Dedicate a page to each child in your group. Take notes on what children like, what they already know, and what you hope to teach them more about. Make notes about children who work well together and observe how children play and interact. Use these insights to inform your teaching.  
**Examples:** If you notice that a certain child is very physical and loves to be outside you might plan an activity where you take a trip to a hill near your school and "roll" down the hill. As you roll, challenge children to change the shape of their bodies to discover if this makes them go faster or slower.
- **Identify learning styles.**
  - **Most children have particular styles of learning they respond to best;** they may gravitate toward visual, auditory, or kinesthetic learning. Over time, you will become familiar with whether children prefer to learn by hearing, looking, moving, or a combination of these sensory aptitudes.
  - **Address learning styles** in your instructions by explaining, demonstrating and, if appropriate, letting children participate in the demonstration in a hands-on way.





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- **Offering visual, auditory, and kinesthetic experiences** doesn't just benefit the child who prefers to listen, look, or move. Research shows that the more ways in which an idea is presented, the more children understand and retain the idea.  
**Example:** All learning styles can be addressed no matter what the science topic. A visual learner, for example, may like to sketch out her ramp on paper before trying to build it. A kinesthetic learner is likely to want to start testing out ramps right away.

- **Offer Choices.** One effective way to address the unique needs and interests of each child in your program is to devote your learning centers to different aspects of learning.  
**Example:** For example, in one center children can build ramps using materials of their choice—flat ramps, rigid tubes, or flexible tubes. In another, they can sort objects into "roll, slide, stay put" piles. In yet another they can paint and draw diagrams of slides, ramps, and roller coasters.

## Your Experiences

- What strategies do you have for getting to know individual children in your program? What's an example of an observation about a child that's informed your planning and teaching?
- Are you always able to tell if a child prefers to learn through listening, looking, or moving? What would you say is your own preferred way of learning?
- What are some challenges you have faced when trying to offer many choices to the children in your program?
- What are some unique activities that have come out of children's interests?

## More Resources

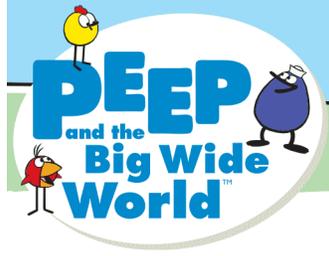
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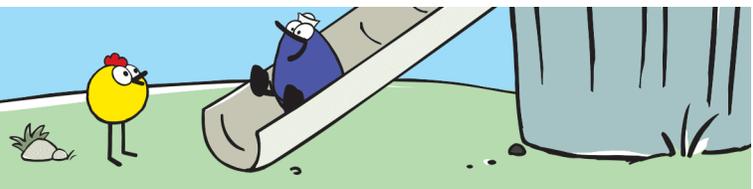
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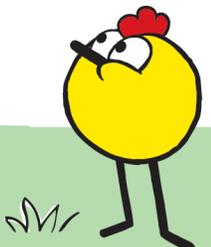


## Homework Assignment

- Use the online PEEP Ramps curriculum to choose **one guided activity** to do with children OR set up **one learning center** for children to explore freely: [www.peepandthebigwideworld.com/educators](http://www.peepandthebigwideworld.com/educators)
- As children explore, document their investigation using drawings, pictures, or charts. Write down the children's observations as they do the activity.
- Use the documentation to create a poster, photo album, scrapbook, or other form of visual display that records the children's experiences with the activity or learning center.
- At the next session, everyone will share their visual displays and discuss what they learned.

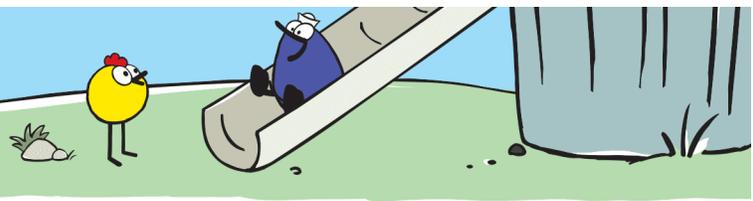
Be prepared to answer these questions:

1. Which learning center or guided activity did you choose to set up? Why? What appealed to you about it?
2. How did you incorporate the teaching strategies—those from Learning Centers or from Science Talk?
3. What was the most satisfying part of leading the guided activity or setting up your learning center? What was challenging?





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## Training Evaluation

Thanks for your participation. Please share your impressions below.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Did the presenter identify learning goals at the beginning of the training?					
Were the learning goals met?					
Did the training meet your needs and expectations?					
Was there time for discussion and questions and answers?					
Was the presenter knowledgeable?					
Was the training organized and easy to follow?					
Will you be able to apply what you learned?					

What was most helpful about this training? Why was it helpful?

