Education Bridge Curriculum

Math Resources

Video Response

Directions: Watch the video and listen for key words or phrases. Write them in the blanks.

1. While reading books, there's an _____ connection which creates joy while also supporting learning.

2. Similar to other learning experiences, families need to maintain a _____ _____ about math.

3. Talking _____ about math often keeps a child feeling _____ in their own _____ .

4. Books that bring math into _____ _____ _____ and use interesting pictures and text can motivate children to learn _____ _____ and _____ .

5. Picture books that teach math _____ are simple ways to _____ _____ to a child's everyday life.

6. By choosing illustrated books based on math to read to your child, there is potential to _____ _____ between _____ _____ and _____ in school and life.

7. Look at the _____ of the book and _____ what might happen in the story.

8. Look at all the _____ in the book without _____ _____ _____ to generate interest.

9. While reading, have _____ about the book and make connections to your child's _____ _____ , _____ they know, or _____ that they may have experienced that are similar to the characters in the book.

Created by Christine Noreik 2025

Outcome #1

Video Response- Answer Key

Directions: Watch the video and listen for key words or phrases. Write them in the blanks.

1. While reading books, there's an emotional connection which creates joy while also supporting learning
2. Similar to other learning experiences, families need to maintain a positive attitude about math.
3. Talking negatively about math often keeps a child feeling confident in their own abilities.
4. Books that bring math into real life situations and use interesting pictures and text can motivate children to learn new skills and concepts.
5. Picture books that teach math directly are simple ways to make connections to a child's everyday life.
6. By choosing illustrated books based on math to read to your child, there is potential to promote connections between mathematical ideas and experiences in school and life.
7. Look at the cover of the book and predict what might happen in the story.
8. Look at all the pictures in the book without reading the words to generate interest.
9. While reading, have conversations about the book and make connections to your child's favorite foods, people they know, or situations that they may have experienced that are similar to the characters in the book.

Reading Response

Book Title: _____ Author: _____

What age range is this book intended for? _____

Summarize the book:

_____

_____

_____

_____

_____

What math concept(s) are taught in this book?

_____

_____

_____

_____

_____

What did you like about this book? What didn't you like?

_____

_____

_____

_____

_____

Math Milestones Quiz:

Directions: Match the milestone to the correct age range. Letters on the bottom will be used more than once.

1. Pretend counts while touching or pointing and saying number words: May count two objects accurately. ____

2. Uses comparison words (taller, tallest, heavier, heaviest). ____

3. Begins to point at objects. ____

4. Predicts patterns of events in unfamiliar stories. ____

5. Uses information about length and distance to solve problems (gets chair to reach toy on shelf). ____

6. Repeats action sequences over again in play (put it in, dump it out). ____

7. Uses comparison strategies such as putting one in each hand, to learn which is heavier. ____

8. Develops understanding that the last number in a sequence represents the total number in the group. ____

A. 6-24 months
B. 2-3 years
C. 3-4 years
D. 4-5 years

Created by Christine Noreik 2025

Math Milestones Quiz: Answers

Directions: Match the milestone to the correct age range. Letters on the bottom will be used more than once.

9. Pretend counts while touching or pointing and saying number words: May count two objects accurately. B

10. Uses comparison words (taller, tallest, heavier, heaviest). C

11. Begins to point at objects. A

12. Predicts patterns of events in unfamiliar stories. D

13. Uses information about length and distance to solve problems (gets chair to reach toy on shelf). B

14. Repeats action sequences over again in play (put it in, dump it out). A

15. Uses comparison strategies such as putting one in each hand, to learn which is heavier. D
16. Develops understanding that the last number in a sequence represents the total number in the group. C

E. 6-24 months
F. 2-3 years
G. 3-4 years
H. 4-5 years

Created by Christine Noreik 2025

Subitizing at a Glance

What Is Subtizing?

Subitizing, like counting, helps us answer the question "how many?" Subitizing is different because it involves knowing "how many" without counting each item in a set.

"Subitize" means "suddenly." People "just see" or "just hear" exactly how many. Children perceive small quantities even before they learn number words. Many scientists view subitizing as an unlearned, intuitive ability in humans and other animals, and find that—in the most basic sense—subitizing is limited to small quantities, like one, two, three, and maybe four items. Other researchers and educators define perceptual subitizing as learning to assign number words to these intuitive quantities. They define conceptual subitizing, such as "seeing" six in two groups of three, as a way to quantify larger quantities.

Why Is Learning About Subitizing Important?

Subitizing is an important and often neglected foundation in math for two reasons:

First, teachers' awareness of this intuitive ability helps them appreciate that all children are mathematical thinkers. Why? Because subitizing is the first way children experience quantities—from birth.

Second, many math skills build on children's ability to subitize. Even counting skills benefit from children developing perceptual subitizing early. Conceptual subitizing is one important way to understand addition.

What Do Children Need to Know About Subitizing?

To build perceptual subitizing skills, children need to be able to connect their intuitive perception of specific small quantities to corresponding number words.

To extend perceptual subitizing to build conceptual subitizing, children need to be able to:

- Recognize larger quantities by seeing the smaller sets that make them up, and
- Quickly and implicitly combine the sets together into one quantity.

How Can We Help Children Learn Subitizing?

Talk About Subitizing Throughout the Day

Describe sets or groups of objects in the child's world. Link specific number words to specific quantities, starting small and slowly building up to larger numbers.

Ideas for Exploring Subitizing During:

Centers/Small Groups

Cookie Game: Children roll a die, see what number appears, and place that many chips on a pretend cookie. Although they might count, many children, especially with encouragement, will subitize the dice patterns.

Math Moments

Counting Clean-Up: Teachers intentionally use number words when making requests. For example, instead of saying, "Please put the rest of those blocks away," say, "Please put those three blocks away."

Subitizing Practice

The teacher rolls a die and immediately hides it, and then asks children to Think-Pair-Share to tell each other the number they saw. As an extension, the teacher shows three or more groups, with only one of a different number than the others, for just two seconds and asks children which group is not like the others. Again, children Think-Pair-Share to tell each other which group was different.

How Can We Support Learning About Subitizing at Home?

Teachers encourage parents to use number words meaningfully when describing or asking for something at home. This gives children opportunities to associate specific number words with corresponding quantities.

DREME Development and Research in Early Mathematics Education

preschoolmath.stanford.edu

By Douglas Clements

Text Dependent Questions for "Subitizing at a Glance”

1. What does “subitizing” mean?

2. True or False: Subitizing is important but often neglected.

3. What are the two reasons the text gives that subitizing is important?

4. What does the word “intuitive” in the second paragraph mean? What other word in the sentence helps you understand its meaning?

5. What is one way adults can teach subitizing according to the article?

6. Can you think of any other ways to help children learn subitizing at home or in the classroom?

Created by Christine Noreik 2025

Outcome #3

Learning to measure with infants and toddlers is important for future math learning

Tracy Trautner, Michigan State University Extension - January 02, 2019

https://www.canr.msu.edu/news/learning-to-measure-with-infants-and-toddlers-is-important-for-future-math-learning

> Measuring activities can be easily implemented into the day in natural ways with children.

An early understanding of measurement begins when children simply compare one object to another. For example, when we ask, “Which one is shorter? Taller? Longer? Heavier?” children are learning attributes about an object and that they can be

measured more than one way. A rock can be heavier and smaller than a feather that would be lighter and possibly larger.

Give children the opportunity to measure things using different objects. Use their favorite doll to measure how long the table is and have them exclaim, “The table is four doll lengths long” or “The table is two doll lengths tall.” Or, “This block is 10 plastic chickens long and two plastic cows tall.” Using a scale, they can decide how many cups of sugar equal the weight of their favorite firetruck. Infants and toddlers can watch you measure and will find joy in trying it for themselves. At this younger age, we are simply building a foundation of knowledge for future math learning through exposure and experimentation.

A great measurement activity for children of all ages is cooking. Cooking gives children many opportunities to learn how to count, measure, add and estimate. Even at this younger age they might just be watching and listening to you as you prepare snacks, lunches or bake cookies. They should be able to help you with many parts of the cooking activity as possible through filling, stirring and pouring.

Michigan State University Extension provides the following ideas to extend exposure to measurement with young children:

- Measurement includes finding the size, weight, quantity, volume and time. Use comparison words such as *big* and *little, few or lots,* when talking with children of all ages.
- Use *math talk*: “The pink toy is bigger than the blue toy.” “You are taller than your sister.” “You put the smaller cup in the larger cup.” Emphasize with the tone of your voice the measurement words.

- With children, describe how long or tall something is, how much something holds, how heavy something is, how much space is covered and how long it takes to get somewhere.
- Between the first and second year, some children will explore quantity by filing and emptying containers with water or sand.
- Around the fourth year they may be able to understand the concept of time. This includes concepts such as morning, afternoon, night, earlier, later and soon. Some children will be able to name months, days of the week and seasons.

Books that teach measurement:

- **"Ernest"** by Catherine Rayner
- **"Guess How Much I Love You"** by Sam McBratney
- **"How Many Bugs in a Box?"** by David A. Carter
- **"Who Sank the Boat?"** by Pamela Allen
- **"Mr. Cookie Baker"** by Monica Wellington
- **"Measuring Penny"** by Loreen Leedy

Other resources from the National Association for the Education of Young Children:

- 10 Things to Know About Math
- Support Math Readiness Through Math Talk
- Helping Your Child See and Show Mathematical Ideas

This article was published by **Michigan State University Extension**. For more information, visit https://extension.msu.edu. To have a digest of information delivered straight to your email inbox, visit https://extension.msu.edu/newsletters. To contact an expert in your area, visit https://extension.msu.edu/experts, or call 888-MSUE4MI (888-678-3464).

Easy Playdough for Toddlers

https://www.tulsakids.com/easy-playdough-for-toddlers/

Preparation

Although I am by no means a clean freak (just ask my neighbor), I did lay down some heavy plastic underneath our workspace, and I was glad I did. Later, I saw the suggestion to tape the plastic down with painter's tape. I'll do that next time, plus I might add a layer of plastic on the floor. Nagging a toddler to keep things clean is like asking the water at Niagara Falls to quit running. Here is what you need to have to make play dough:

- Big mixing bowl
- Measuring cups and spoons
- Big spoon for stirring
- Flour
- Salt
- Warm water
- Cream of Tartar (optional - I didn't have any, so we skipped it)
- Food coloring
- Cookie cutters
- Rolling pin
- Plastic utensils
- Kitchen towels or paper towels for cleaning sticky hands
- Patience and a blind eye to messiness

Recipe and Instructions

- 1 cup of flour (any kind is fine - I used Gold Medal All Purpose)
- ¼ cup of salt

- 1 Tbsp cream of tartar (optional - I didn't have any, so we skipped it)
- ½ cup of warm water
- food coloring

1. We measure the ingredients together (a hidden math lesson), and then I let Callister pour them into the bowl and stir. I like the separate measuring cups because I think it helps them visualize amounts better. Mix the flour, salt, and cream of tartar together.
2. If you want to be neat and clean, you may mix ½ cup of warm water with a few drops of food coloring, but that would mean only one color in each batch. We wait and add colors later. I'll explain in step five.
3. Slowly pour the water into the flour mixture, stirring as you pour. Stir until combined, then knead with your hands until the flour is completely absorbed. If the dough is too sticky, add more flour until it doesn't stick at all.
4. Divide dough into three different segments.
5. Make a small well in the center of each piece of dough. Let the child squirt a few drops of food coloring into the center of the well and then work the color into the dough. Yes, this is really messy, but it's such a great sensory experience. We do the three primary colors; red, yellow, and blue. When he finished with those, we decided to experiment with making secondary colors. We made green by mixing yellow and blue together, purple by adding blue and red. We had to make his grandad's favorite color by mixing red and yellow together to make orange. You see, I snuck a little lesson about colors into a fun activity, and he didn't even realize he was learning about primary and secondary colors!
6. Let the child use the rolling pin, cookie cutters, and plastic utensils to have fun playing with the finished playdough.
7. When we were finished, I stored the play dough in an old cool-whip container. It stayed fresh for a week.

Measurement Activity Planning

1. Name of your activity:

2. Age this activity is intended for:

3. Materials needed:

4. What will the children do?

5. How does this teach children about measurement?

Created by Christine Noreik 2025

Outcome #4

Find Patterns Everywhere!

Activity May 4, 2020

https://carnegieart.org/classroom/activity-find-patterns-everywhere/

A pattern is a kind of design that repeats colors, shapes, objects, lines, or symbols in a predictable way. Sometimes, in a complex pattern, it can be hard to discover where the repetition begins and ends. Patterns are not limited to works of art. They can be found everywhere, including nature and everyday objects. You can probably see a pattern from where you are right now! In today's activity, let's start by examining the following artworks with our eyes peeled for patterns.

Donald Judd, Untitled, 1993–1994, Carnegie Museum of Art

Zoe Strauss, West Homestead Homes, 2013, Carnegie Museum of Art

Discuss with These Questions:

1. Look at the two artworks provided. Where do you see patterns? Describe what is being repeated to create the pattern. Which are simple patterns and which are complex patterns?

2. Look around your home. What patterns do you notice?

Get Creative: Search for Patterns and Create Your Own Pattern

Materials needed: paper, pencil, crayons, colored pencils, markers, or paint

- Sitting wherever you are with your paper and pencil, look around for some patterns. Make a list of everything you see that has a pattern of repeating colors, shapes, symbols, or lines.
- Now, go on a pattern search. Look in your kitchen, bathroom, bedroom, and any other spaces you'd like. Don't forget to look in your closet or dresser drawers. Clothes are often decorated with stripes, polka dots, or repeating images like floral prints.
- As you walk about, make sure to stop in a couple of different places. Take some time to sketch your favorite pattern. What do you like about it? What makes it your favorite?
- Count the number of patterns on your finished list. How many did you find?
- Which patterns were you most surprised to discover? Why?
- Are the patterns you found like the Judd artwork, featuring one repeating element with even spaces in between? Or are they like the draperies and carpet in the Teenie Harris photograph, with multiple shapes repeating in a more complex way?
- Now flip your paper over and try creating your own original pattern. What will you repeat? Have fun with the repetition of colors, shapes, objects, lines, or symbols! Challenge yourself to cover your entire page with the same pattern. Maybe you can use your patterned paper to wrap a gift for someone special!

Teaching patterns to infants and toddlers

Tracy Trautner, Michigan State University Extension - January 02, 2019

https://www.canr.msu.edu/news/teaching-patterns-to-infants-and-toddlers

Pattern activities can easily be implemented into the day in natural ways with children.

Children love to find patterns in the world around them. Patterns help children understand change and that things happen over time. Patterns are things that repeat in a logical way, like vertical stripes on a sweater. They can be numbers, images or shapes. For example, a pattern can be made out of plastic animals alternating between two and four legged animals or animals that swim versus animals that fly.

Patterns help children make predictions because they begin to understand what comes next. They also help children learn how to make logical connections and use reasoning skills. Patterns can be found everywhere in our daily lives and should be pointed out to small children. "The sun came up and went down and then the moon came up and went down."

Do not underestimate what a child is capable of learning in all academic areas including math. Toddlers can act out patterns such as jumping to the left, then right, then left and then right. They can observe repeating patterns like a block standing, block lying flat, block standing, block lying flat, etc. They become able to copy simple repeating patterns, such as green, white, green, white and so on. Eventually, they will be able to make their own simple patterns.

Michigan State University Extension provides the following ideas to extend exposure to patterns with young children:

- **Use *math talk:* "Let's clap to the beat of this song." "Your sweater has stripes. Red, blue, red, blue, red, blue…"**
- **Read books and sing songs and lullabies with words and phrases that repeat.**
- **Have a consistent routine.**
- **Describe what you see the child doing. "I put the blocks in the pail; you dumped them out; I put blocks in; you dumped them out."**

Books that teach patterns:

- **"Ten Little Rabbits" by Virginai Grossman**
- **"Max Found Two Sticks" by Brian Pinkney**
- **"Close, Closer, Closest" by Shelly Rotner**

- **“Nature’s Paintbrush: The Patterns and Colors Around You” by Susan Stockdale**

Other resources from the National Association for the Education of Young Children:

- **10 Things to Know About Math**
- **Support Math Readiness Through Math Talk**
- **Helping Your Child See and Show Mathematical Ideas**

This article was published by Michigan State University Extension. For more information, visit https://extension.msu.edu.

Pattern Activity Planning

1. Name of your activity:

2. Age this activity is intended for:

3. Materials needed:

4. What will the children do?

5. How does this teach children about patterns?

Spatial Words Spinner

This game explores:
SPATIAL SENSE

Learning Goal

In this game, you will practice using spatial words. Spatial words help us explain where objects and people are. Examples of spatial words are: above, below, around, next to, on top of, behind, up, down, in between, etc.

What You'll Need

- Pencil and a paper clip
- Spinner board
- Game board for each player
- Tokens (coins, beans or small objects)

How to Play

1. Take turns spinning the paper clip around the tip of the pencil on the spinner board.
2. Find a picture on the game board that shows the spatial word you landed on, and place a token on it.
   TIP: *There are different ways to match the spatial words on the spinner board to the pictures on the game board. For example, you might match "**in**" with the image showing the tree and apples because the apples are "**in**" the tree. You might also match "**next to**" with the same image because one apple is "**next to**" the tree. Although that may be the case, choose one image per turn.*
3. To win the game, be the first player to fill spaces in a row!

Talk Together

- Why did you choose that picture for that spatial word?
- Do you see other pictures that also demonstrate that spatial word?

Gira, gira con sentido espacial

Este juego explora:
SENTIDO ESPACIAL

Objetivo de aprendizaje

En este juego, practicarán el uso de palabras espaciales. Las palabras espaciales nos ayudan a explicar dónde están los objetos y las personas. Ejemplos de palabras espaciales son: encima, debajo, alrededor, junto a, encima de, detrás, delante de, arriba, abajo, entre, etc.

Lo que necesitas

- Un lápiz y un sujetapapeles
- Tablero giratorio o “spinner”
- Tablero de juego para cada jugador
- Fichas (monedas, frijoles u otros objetos pequeños)

Cómo jugar

1. Tomen turnos girando el sujetapapeles alrededor de la punta del lápiz en el tablero giratorio “spinner”.
2. Encuentren una imagen en el tablero de juego que muestre la palabra espacial y coloquen una ficha en ese espacio.
   TIP: *Hay diferentes formas de interpretar las palabras espaciales en el tablero giratorio “spinner” con las imágenes en el tablero de juego. Por ejemplo, pueden interpretar la imagen que muestra el árbol y manzanas como "**dentro de**" porque las manzanas están "**dentro del**" árbol. También puede ser "**junto a**" porque una manzana está "**junto al**" árbol. Aunque eso sea el caso, solo escogan una imagen por cada turno.*
3. ¡Para ganar el juego, sé el primer jugador en llenar cuatro espacios consecutivos!

Platiquen juntos

- ¿Por qué eligiste esa imagen para esa palabra espacial?
- ¿Ves otra imagen que también muestra esa palabra espacial?

FAMILY + MATH

To make a spinner, you will need:

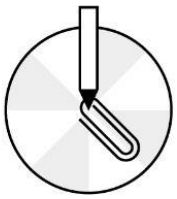
Para hacer un tablero giratorio "spinner", necesitarán:

1 paper clip/
sujetapapel

1 pencil/
lápiz

Put the paper clip in the center of the spinner.

Pongan el sujetapapel en el centro del tablero giratorio "spinner".

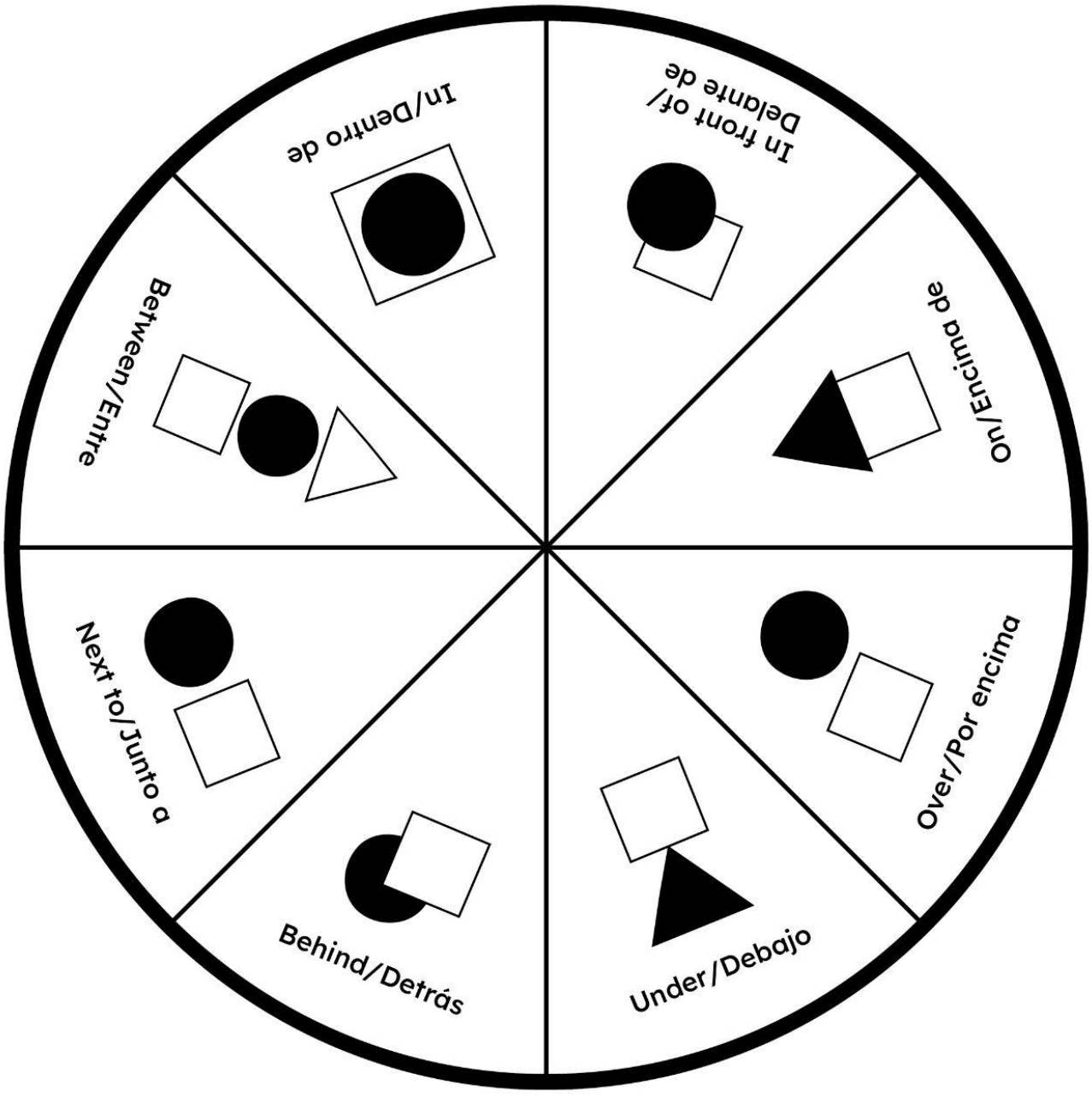


Put the tip of the pencil through the paper clip to hold it in place.

Pongan el sujetapapel en el centro del tablero giratorio "spinner".

Spin the paper clip!

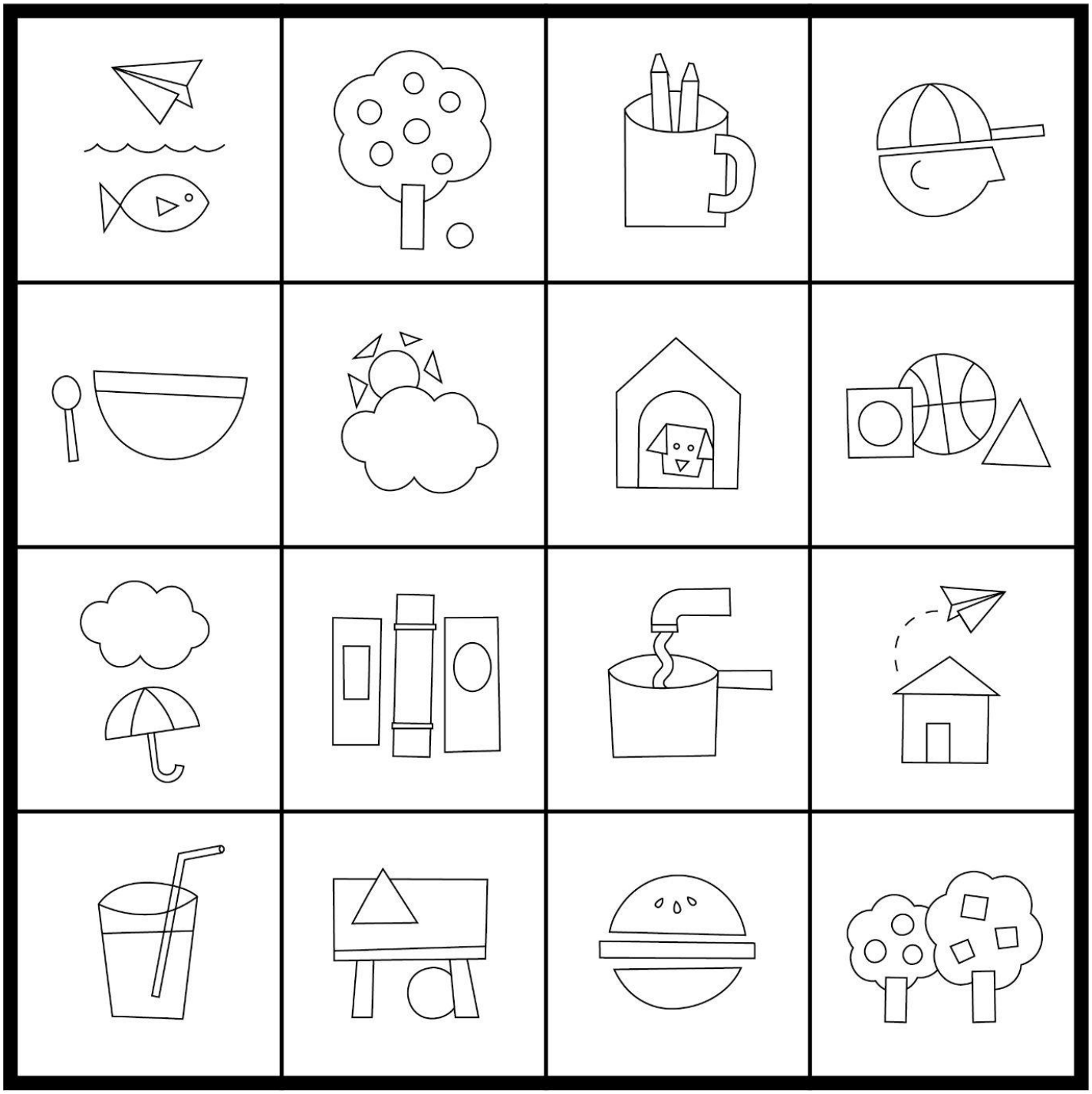
¡Denle vuelta al sujetapapel!



Spatial Words Spinner

Gira, gira con sentido espacial

4 in a Row



4 en una fila

Shape Walk

Circle

Sphere

Square

Rectangle

Cone

Cylinder

Triangle

Spatial Reasoning/ Geometry Activity Planning

1. Name of your activity:

2. Age this activity is intended for:

3. Materials needed:

4. What will the children do?

5. How does this teach children about spatial reasoning or geometry?

Outcome #6

Support mathematical problem-solving skills in the early years

https://educationendowmentfoundation.org.uk/early-years/mathematical-problem-solving-skills
14 November 2023

Lauren Grocott, our early years content specialist, has over 17 years of experience in the education sector. In this blog, she introduces one of the approaches from the new early mathematics theme in the Early Years Evidence Store.

Lauren Grocott
Content and Engagement Specialist (Early Years)

We know that being 'evidence-informed' is crucial for developing practice in the early years. But sometimes, translating research into day-to-day practice can feel complicated.

Using high-quality research evidence can help us to identify approaches that are worth investing more time into and those which are not.

The new **Early Mathematics** theme in the Early Years Evidence Store looks at five specific approaches to support early maths development. Luckily, opportunities to use one of these approaches often hide in plain sight.

Approach 3: Teaching problem-solving skills for maths

Puzzling maths problems crop up every day in our settings. They are so common, in fact, that they can become camouflaged in amongst the busyness of the day:

What is the best way to make the base of the block tower stable? What can we do when there are not enough chairs to sit at the snack table? How much more sand can we fit into this bucket?

Some problems have more than one solution or process to find a response; others may stump even the most experienced educator! This begs the question: how can we teach problem-solving skills for maths?

A range of options for practice

Evidence tells us that explicitly teaching problem-solving skills is effective when combined with other approaches. A multi-pronged approach is particularly important for

children from lower-income homes or those at greater risk of not meeting expected levels of development.

The list of suggested ways an educator can teach problem-solving skills for maths includes:

- Thinking aloud
- Modelling using representations (eg: manipulatives or drawings) to solve a mathematical problem
- Reminding
- Providing a menu of strategies
- Reflecting
- Narrating
- Using mistakes as teaching and learning opportunities.

Full descriptions of these practices, along with video and written examples, can be found on the **approaches page** of the Evidence Store.

As most studies look at the effectiveness of using multiple approaches and practices, it is difficult to pinpoint which are the most influential. Evidence does, however, highlight some specific practices for teaching problem-solving skills for maths that can help children's maths development, such as thinking aloud, modelling using representations and problem-solving strategies, and reminding children to use problem-solving techniques (highlighted in bold above).

As with other areas of learning, breaking problems down into chunks and scaffolding learning was an effective way of teaching problem-solving skills for maths.

Helping Preschoolers & Young Children Develop Problem-solving Skills

Sep 16, 2024 | ECE Theory & Philosophy
https://good2knownetwork.org/helping-preschoolers-young-children-develop-problem-solving-skills/

The ability to recognize, approach, and solve problems is foundational to success in all areas of life, during childhood and beyond. These problem-solving skills emerge at an early age, and are nurtured and reinforced through playful learning activities and positive interactions between young children and their adult caregivers. In this article, we explore the role of problem-solving in early childhood, and offer suggestions and strategies for supporting and encouraging the children in our care as they develop these important foundational skills.

What Are Problem-solving Skills?

Problem-solving skills equip us to respond to challenges and difficult situations by thinking about possible solutions and then creating an action plan for testing those solutions. Solving problems requires us to tap into a variety of different skills at once, including:

> Creativity: being able to come up with unique solutions to problems by generating a variety of ideas and possibilities

Analytical thinking: breaking down a problem into manageable parts

Decision-making: considering various options and ways of solving the problem and deciding on the most logical solution

Initiative: an ability to take action towards finding a solution when there is a problem to be solved

Persistence: commitment to finding a solution through a willingness to try again when an initial attempt fails

Why Do Problem-solving Skills Matter for Young Children?

Knowing how to solve problems is important, because no matter what our age, challenging situations are part of our daily lives!

For very young children, frustrations and challenges might include: figuring out how to use a particular toy, looking for something that is misplaced or located in a difficult-to-access spot, or deciding what to do when a tower they're building with blocks falls over or when they want to play with a toy that another child is using. As children get older, their challenges become more complex, showing up in areas such as school, activities outside of school, and relationships.

By introducing the little ones in our care to problem-solving skills while they are young, we help them gain confidence in their ability to come up with creative solutions of their own when they encounter challenges. When a child is frustrated, we can ask the child to

describe the problem they are facing and encourage them to offer ideas for resolving the situation. These types of conversations give children opportunities to practice foundational problem-solving skills and to gain a sense of trust in their ability to navigate the challenges that come their way during play, school, and throughout life.

How Problem-Solving Skills Develop: Ages 0-3

Infants and toddlers spend a good part of their days observing, exploring, and trying to overcome obstacles. This early problem-solving behavior emerges early and develops with practice. Below is a framework from Illinois Early Learning Project that describes key problem-solving behaviors, milestones, and achievements that occur in children between the ages of 0 and 3.

Birth to 9 months

At this age, children are building the foundation for problem solving through active exploration and social interaction. You might observe them attempting to get a caregiver's attention when they need something by using sounds, cries, gestures, and facial expressions. To support the development of problem-solving skills at this age, educators and care providers can respond with thoughtfulness and intention when infants attempt to get their attention. They can also interact with them using frequent back-and-forth exchanges

throughout the day to provide opportunities for them to reinforce their skills.

7 months to 18 months

As children approach toddlerhood, they begin to develop more physical strength that allows them to manipulate their environment. They discover that they can solve problems on their own and that they can rely on their caregivers when they need support. At this age, you might observe children repeating an action over and over again to figure out how an object works. You might also see them experimenting with different strategies to accomplish a goal, such as pulling the string of a toy train to move it closer or crawling to get a ball that has rolled away.

To support little ones at this stage in strengthening their problem solving skills, by encouraging their independence to try new things and praising them for accomplishing new tasks on their own.

16 months to 24 months

As children approach their second birthday, they have an enhanced capacity to solve problems independently. You may observe them utilizing trial and error to figure out a problem, such as trying to insert a shape at different angles to make it fit in a sorter. You will likely also see children verbally communicating their needs with caregivers and

utilizing objects in the environment to solve problems, such as using a bucket to move numerous books to the other side of the room.
At this age, care providers and educators can support children in practicing problem-solving skills by talking through various solutions with the child, such as “I wonder what would happen if we turned the puzzle piece this way.” It can also be beneficial to give children opportunities to solve problems without your help by stepping back and encouraging them to try on their own before you jump in to support.

21 months to 36 months

Preschoolers are able to handle more complex thoughts, such as strategizing solutions and making a decision about the best option to solve a problem, with fewer trials. At this age, children increasingly become more autonomous and will attempt to overcome obstacles on their own or with limited support from their caregiver. You might also observe them showing pride when accomplishing tasks and using more refined skills to solve problems, such as using a napkin to clean up a spill without asking an adult for help.
To support preschoolers in strengthening their skills, educators can follow the child’s lead and pay attention to their cues when assisting in a task and provide the child with uninterrupted time to work on activities independently.

Creating an Early Learning Curriculum that Encourages Problem-Solving

Many of the playful activities that children enjoy in our care & learning programs encourage the development of foundational problem-solving skills. Some great ones to try include:

Exploring Puzzles

Solving puzzles encourages children to use their analytical thinking and trial-and-error skills to figure out how the puzzle pieces fit together. Toddlers and young preschoolers can work with simpler wooden puzzles with a few large pieces, while older children can take on more pieces. If you don't have puzzles available in your classroom, you might consider making your own with construction paper.

Incorporating STEM Learning into your Curriculum

STEM activities invite little ones to experiment, test hypotheses, and figure out how to approach problems. STEM activities incorporate science, technology, engineering, and math, for learning through hands-on experiences. If you are looking for inspiration for bringing more STEM learning into your classroom, you might enjoy checking out some of these G2K articlesfrom the archives.

Utilizing Loose Parts

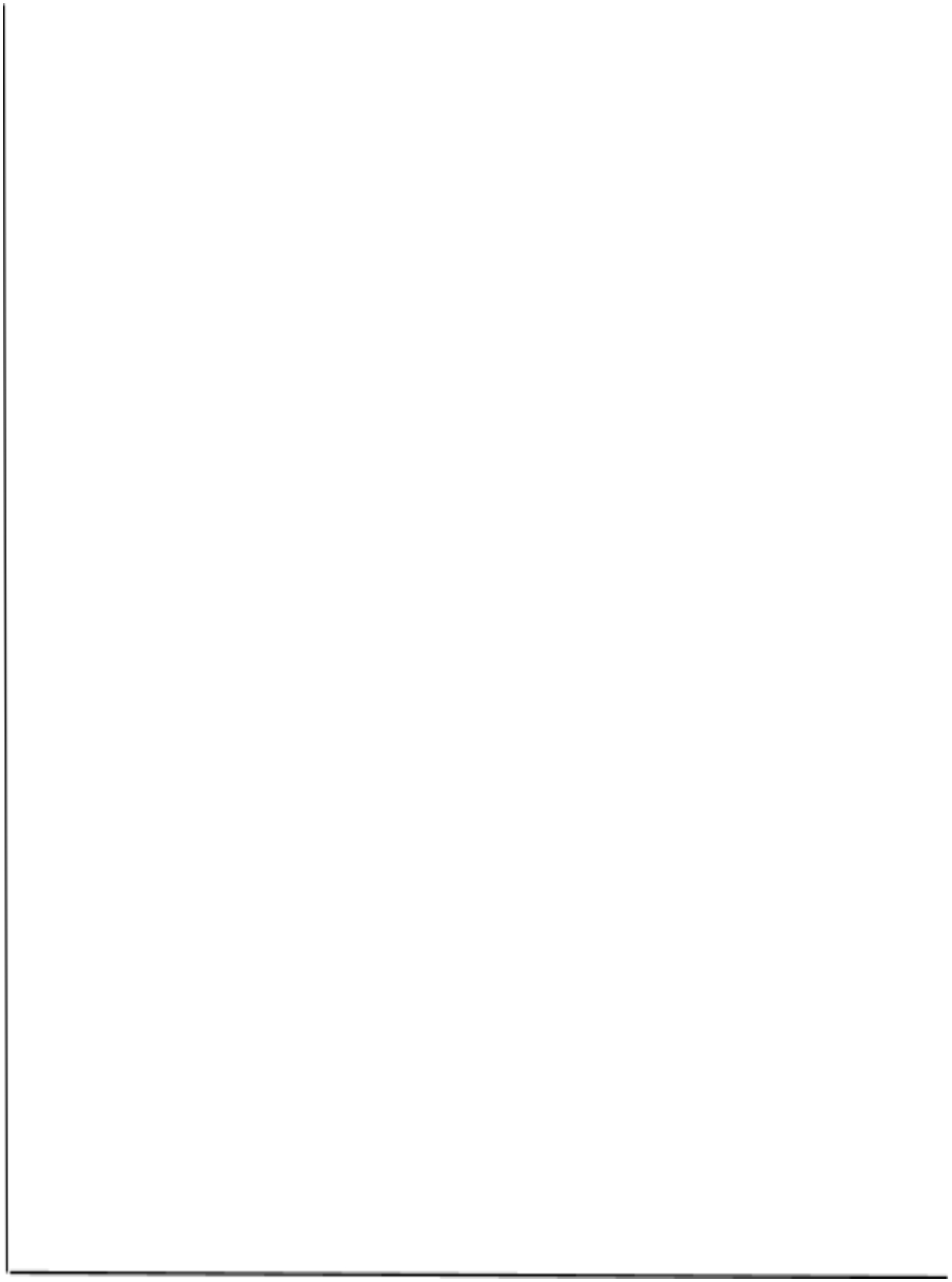
Loose parts are any material that can be utilized, taken apart, and put back together in multiple ways. Almost any item, from rocks to corks to pieces of fabric can be used for loose parts play. Offering these kinds of materials to young children encourages them to get creative, experiment, think critically, and figure out different ways to use the

items which gives children a chance to practice a variety of problem-solving skills. As children build, construct, and create, they have opportunities to test their ideas and try to figure out how to make their visions come to life.

Outcome #7

Student Birthdays

Name	Month



Outcome #8

Calculating Area Word Problem

1. Learning Stars Early Learning Center is renovating their preschool classroom. The classroom is 20 ft. by 30 ft. The dramatic play area is 8.4 ft. long and 6.2 ft. wide. The kitchen and dining area is 10.2 ft long and 11.5 ft. wide. The rest area is 5ft. long and 7.5 ft. wide.

    a. The center director wants to put carpet in the dramatic play area. How many square feet of carpet do they need?

    b. The kitchen and dining area needs new flooring. The center director bought 112 square feet of flooring. Is this enough? If not, how much more do they need to get?

    c. Suzanne, the lead teacher brought in a rug that is 48 in long and 72 in wide. Will this fit in the rest area?

10 Creative Strategies for Paraeducators to Boost Student Engagement

A Para Pro, 2025. https://www.aparapro.com/boost-student-engagement/

1. Incorporate Visual and Hands-On Activities

Students often learn best when they can see and touch the materials they're working with. Incorporate visual aids like diagrams, charts, and images to help students better understand complex concepts. Hands-on activities, such as interactive learning stations or creative projects, allow students to explore subjects in a tactile way.

Example: Use colored paper to create fraction strips for a math lesson or have students build a model ecosystem for a science project.

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2. Use Storytelling and Role-Playing

Storytelling and role-playing can make lessons more relatable and memorable. Craft stories that connect with the lesson you're teaching, or have students act out scenarios that reinforce the material. These methods not only engage students but also help them develop critical thinking and empathy.

Example: During a lesson on empathy, have students role-play different situations where they need to put themselves in someone else's shoes. This exercise makes the lesson more engaging and helps students internalize the concept.

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3. Foster Collaboration Through Group Projects

Collaboration is key to fostering creativity and allowing students to learn from each other. Group problem-solving activities, peer teaching, and creative group projects encourage students to work together and share ideas.

Example: For a history lesson, have students work in groups to create a timeline of important events. Each group can present their timeline to the class, discussing the significance of each event.

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4. Leverage Technology Creatively

Technology offers endless opportunities for creativity in the classroom. Use interactive apps and games to make learning more dynamic, or incorporate digital storytelling tools that allow students to create their own presentations or stories.

Example: Have students create short documentaries on a topic using a simple video editing app. They can write scripts, record videos, and edit their projects, learning both the subject matter and valuable tech skills.

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5. Encourage Creative Problem-Solving

Encourage students to think creatively when solving problems. Present challenges that require them to think outside the box, and reward creative solutions, even if they're unconventional.

Example: Give students a STEM challenge where they have to build a bridge using limited materials. Encourage them to come up with innovative designs and test their creations to see which one holds the most weight.

6. Integrate Art Across the Curriculum

Art isn’t just for the art classroom; it can be integrated into almost any subject. Use drawing, painting, or other artistic activities to help students express what they've learned in creative ways.

Example: After reading a story, have students draw their favorite scene or create a comic strip that summarizes the plot. This helps reinforce their understanding and allows them to express their ideas visually.

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7. Create a Flexible Learning Environment

A flexible learning environment allows students to choose how they want to approach tasks, which can inspire creativity. Offer different seating arrangements, provide various types of materials, and let students choose how they complete assignments.

Example: Set up different learning stations around the room, each focusing on a different aspect of a lesson. Let students rotate through the stations at their own pace, exploring the topic in different ways.

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8. Use Games and Gamification

Incorporate games and gamification into your teaching to make learning more engaging. Educational games can reinforce key concepts, while gamification elements like points, badges, and leaderboards can motivate students to participate and excel.

Example: Turn a math lesson into a game where students earn points for correctly solving problems. Offer small rewards for reaching certain point levels to keep them motivated.

9. Encourage Student-Led Learning

Give students the opportunity to take the lead in their learning. Whether it's through peer teaching, leading a group project, or choosing their own research topic, student-led learning empowers them to take ownership of their education.

Example: Allow students to choose a topic they're passionate about for a research project. Provide guidance, but let them take the lead in gathering information, presenting their findings, and teaching their classmates about the topic.

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10. Reflect and Celebrate Creativity

Encourage students to reflect on their creative efforts and celebrate their achievements. Reflection helps them understand the value of creativity, while celebration boosts their confidence and motivation to continue exploring new ideas.

Example: At the end of a project, have a “show and tell” session where students can present their work to the class. Provide positive feedback and celebrate their creativity with a small class party or certificates of achievement.

OppU

Understanding Parts of a Pay Stub Worksheet

Instructions

Use the pay stub to answer the questions below.

PAY TO THE ORDER OF: Everyman, Joe 123 N Clark St. Chicago, IL 60610		**Fix It Builders** 123 Main St. Chicago, IL 60601
EMPLOYEE ID: 123456 PAY TYPE: HOURLY		Pay Date: 10/4/2019 PAY PERIOD: 9/15/2019 - 9/28/2019
HOURS / EARNINGS	**TAXES**	**DEDUCTIONS**
HOURS RATE EARNINGS 80.00 $35 $2,800.00 GROSS PAY: $2,800	FEDERAL INCOME TAX $193.01 MEDICARE $29.72 SOCIAL SECURITY $125.46 IL STATE TAX $90.21 TOTAL EMPLOYEE TAXES: $438.40 NET PAY: $2,209.60	401K $140.00 MEDICAL $12.00 TOTAL DEDUCTIONS: $152.00
DIRECT DEPOSIT / CHECK DETAILS	**EMPLOYER TAXES**	**EMPLOYER DEDUCTIONS**
Direct Deposit Balance TOTAL NET PAY: $2,209.60	FEDERAL INCOME TAX $193.01 MEDICARE $29.72 SOCIAL SECURITY $125.46 FEDERAL UNEMPLOYMENT $2.19 TOTAL EMPLOYER TAXES: $350.38	401K MATCH $112.00 MEDICAL $150.00 TOTAL CONTRIBUTIONS: $262.00

1. Who is the employee receiving the pay stub?

_____

2. When is the pay period of the pay stub?

_____

3. How much does the employee contribute to their 401k?

_____

4. How much does the employer pay in taxes?

_____

5. What is the total net amount of the employee's paycheck?

_____

Average Wage Word Problems

1. Texas, Oklahoma, Arizona, and New Mexico are all Southwestern states. Preschool teachers in Texas make an average of $31,234 per year. In Oklahoma, they make about $29,329 per year. In Arizona, they make $30,876 annually. In New Mexico, they make $31,987 per year. *What is the average wage for preschool teachers in those 4 Southwestern states?*

2. In 2017, David made $31,285. In 2022, he made $33,471. In 2023, he lost his job and only made $25,437. In 2024, he got a better job and made $45,200. In 2025, he made $45,345. *What is David's average yearly wage for the past 4 years?*

3. A paraprofessional who has worked at Richland Early Learning Center for 10 years makes $25 an hour. A worker who has worked there for 5 years makes $20 an hour. A new worker makes $17 an hour. *What is the average hourly wage of all workers?*

4. In September, Maria made $2,345. In October, she made $2,155. In November, she made $2,853. In December she took a vacation and only made $1,587. *What is Maria's average monthly wage for those months?*

5. Nannies in Chicago make about $29 an hour. Nannies in Milwaukee make about $24 an hour. Nannies in Indianapolis make about $23 an hour. *What is the average wage of hired nannies in the Midwest?*

6. Maya makes $32,450 a year. *What is the average wage she gets per month?*

7. Yanis works full time (40 hours a week). He makes $42,872 a year. *What is the average wage he gets per hour?*

8. Alexa makes $15.47 an hour. He works 35 hours a week. *If she works every week, how much money will she make in 1 year?*

Average Wage Word Problems - Answer Key

1. Texas, Oklahoma, Arizona, and New Mexico are all Southwestern states. Preschool teachers in Texas make an average of $31,234 per year. In Oklahoma, they make about $29,329 per year. In Arizona, they make $30,876 annually. In New Mexico, they make $31,987 per year. *What is the average wage for preschool teachers in those 4 Southwestern states?*

   $31,234 + $29,329 + $30,876 + $31,987 = $123,426 / 4 = $30,856.50

2. In 2017, David made $31,285. In 2022, he made $33,471. In 2023, he lost his job and only made $25,437. In 2024, he got a better job and made $45,200. In 2025, he made $45,345. *What is David's average yearly wage for the past 4 years?*

   $33,471 + $25,437 + $45,200 + $45,345 = $149,453 / 4 = $37,363.25

3. A paraprofessional who has worked at Richland Early Learning Center for 10 years makes $25 an hour. A worker who has worked there for 5 years makes $20 an hour. A new worker makes $17 an hour. *What is the average hourly wage of all workers?*

   $25 + $20 + $17 = $62 / 3 = $20.67

4. In September, Maria made $2,345. In October, she made $2,155. In November, she made $2,853. In December she took a vacation and only made $1,587. *What is Maria's average monthly wage for those months?*

   $2,345 + $2,155 + $2,853 + $1,587 = $8,940 / 4 = $2,235

5. Nannies in Chicago make about $29 an hour. Nannies in Milwaukee make about $24 an hour. Nannies in Indianapolis make about $23 an hour. *What is the average wage of hired nannies in the Midwest?*

   $29 + $24 + $23 = 76 / 3 = $25.33

6. Maya makes $32,450 a year. *What is the average wage she gets per month?*

   $32,450 / 12 = $2,704.17

7. Yanis works full time (40 hours a week). He makes $42,872 a year. *What is the average wage he gets per hour?*

   $42,872 / 52 (weeks) / 40 hr = $20.61 an hr

8. Alexa makes $15.47 an hour. He works 35 hours a week. *If she works every week, how much money will she make in 1 year?*

   $15.47 x 35 = $541.45 x 52 = $28,155.40