

Nature-based Learning and Development: Math Ideas for Teachers

[Music]

Narrator: Open the door and look around. When you step outside, you'll find countless ways to help young children learn the math skills they need to be ready for kindergarten. These children are learning math. Their teachers have planned intentional activities for them, activities that use nature to teach math concepts and skills. Let's see how.

Boy: I found something!

Narrator: Children love to discover things.

Boy: I found an ant.

Narrator: And a great way to practice one-to-one counting is to pick up a handful of leaves, rocks, or cherry tomatoes. You'll never run out of things to count: onions, seedlings, snowballs. You can help children use numbers in different ways: to add more or to take away.

Teacher: How many do we have so far?

Teacher and children: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Teacher: So we need 15. How many more should we draw?

Narrator: You can show them how to sort objects and group them by size, color, or shape.

Girl: These ones go together and these ones go together.

Narrator: They can also compare objects and sets. Which has more? Which has less? Which has the same amount? When you teach children about geometric shapes...

Teacher: When we go outside, we're going to look for ovals and stars and squares...

Narrator: You can do fun activities that take everyone outside.

Teacher: Does it kind of match?

Girl: Let's find more!

Narrator: And as any teacher knows, there are many ways to bring nature indoors. Luckily, collections are a good thing, especially when your classroom has a place to display them and store them. Children want to play with and learn from the things they find.

Teacher: You've made two lines of sand dollars.

Narrator: Patterns in nature can help children learn about other kinds of patterns: colors and shapes, movement, and sounds.

Girl: Green, brown, green, brown.

Narrator: They can copy a pattern.

[Knocking]

[Knocking]

And they can extend a pattern.

Teacher: So slap your knees and then stomp. That's a great pattern. But remember, for a pattern, we want it to be repeating. So we do one thing, then the next thing, then the next one, then it happens over and over and over again.

Narrator: When children have uninterrupted playtime, they make discoveries.

Girl: I discovered mud!

Narrator: Especially when they can experiment on their own with measuring cups and spoons, scales and rulers. Try offering them different shapes that hold the same amount. You can ask, "Is this cup different from that one?" "What would happen if you tried to pour the water from one container into another?" Children learn about rulers and measuring tapes.

Teacher: Let's see how tall you are. How tall do you think you are?

Narrator: But what about measuring with other things, including our own hands and feet? Math isn't a separate activity; it's part of everyday life.

Teacher: How many more days do we have left for school?

Narrator: Young children are learning about time, about clocks and calendars, and how time passes in minutes and hours, days and weeks, months and years. They can learn to observe and record changes for themselves over time.

Teacher: Last time you looked at this, how many did you have?

Girl: One.

Teacher: Just one. So now you have doubled your amount of flowers. You've added another. So how many do you have now?

Narrator: Math is everywhere, and it's fun. It's easy to find math outside with: counting...

Girl: 1, 2, 3, 4, 5!

Narrator: Sorting...

Girl: These ones go together.

Narrator: Geometric shapes...

Girl: Triangle, rectangle, square, sphere.

Narrator: Patterns...

Girl: Yellow, black, white, yellow, black, white.

Narrator: and measuring.

Girl: Look how long. Five footsteps.

Narrator: According to research, children's attentiveness increases when they spend time in nature. With simple activities and materials that are easy to find, we can enrich children's learning.

Teacher: How many? I need a number. Child: I know! 100!

Teacher: 100? Do you think 100 of these will fill this?

Narrator: We can show them new ways to understand.

[Music]