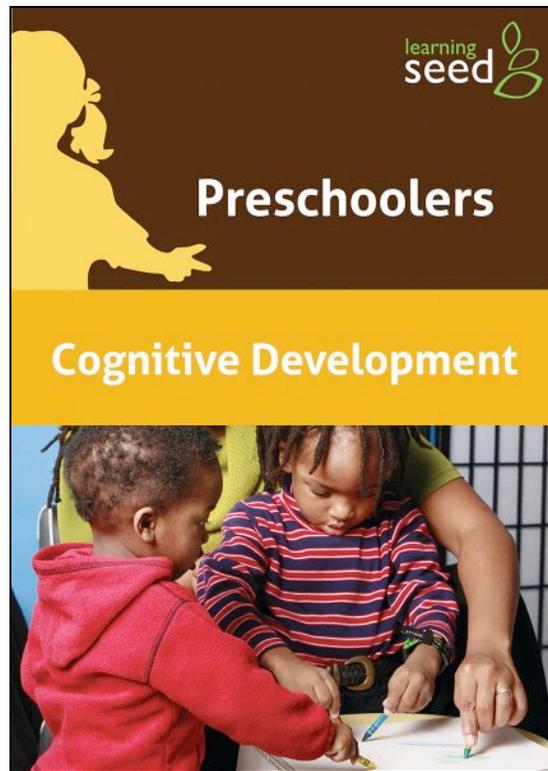


Preschoolers: Cognitive Development



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Preschoolers: Cognitive Development

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Using This Guide/Using This Video

- Before watching this video, have students recount memories of their preschool years. Ask what they enjoyed doing, what they remember learning, and if they had a favorite book or toy.
- Use questions and activities for class discussion, small group activity, homework, or assessment.

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The Program

Summary

When a preschooler explores her world and tries new things, her brain makes connections and her intellect grows. It is fascinating to observe how preschoolers begin to use language, mental imagery and symbolic thinking; think of past and future events; and think about their own thinking. Children start to clearly express themselves and grasp sophisticated mental activities, including emotion, motivation, intention and memory. Using footage of preschoolers in the classroom, dynamic graphics, and interviews with teachers and caregivers, this program delivers a detailed overview of the cognitive development that takes place between the ages of three and five.

Key points:

- Preschoolers are children between the ages of three and five.
- When a child interacts with her environment, her brain makes connections that aid in future learning experiences.
- There are many concepts that preschoolers struggle with on a cognitive level.
- Jean Piaget believed that Preschoolers fell into a stage called, preoperational thought which is characterized by the reliance upon physical cues and perception in order to solve problems and learn.
- Piaget named five types of preoperational thought: perception based thinking, unidimensional thought, transductive reasoning, irreversibility, and egocentrism.
- Lev Vygotsky believed that language and interaction with caregivers are the most important aspects of cognitive development.
- Preschoolers begin to develop symbolic thinking which aids in literacy and language skills.
- Language development takes place in phonology, semantics, syntax, and pragmatics.
- Theory of the mind is a kind of thinking where preschoolers will gain an understanding about what the mind is and how it works.
- Some preschoolers' cognitive development is impaired by challenging conditions
- Teachers can make accommodations for preschoolers with special needs.

How Are They Wired?

It is often said that children's brains are like sponges, soaking up knowledge. Actually, a better analogy for the brain would be a three-dimensional connect-the-dots puzzle. The dots represent brain cells called neurons. These neurons have "arms" called dendrites which grow and make connections with other neurons. These connections are called synapses. When a child interacts with her environment – learns something new- these synapses also link together to form bridges called neural pathways. The more the brain is stimulated, the more neural bridges are formed and the stronger the child's intellect becomes. If a child has a wide base of knowledge, then he has an increased ability to make sense of new experiences.

What Are They Thinking?

Jean Piaget and Lev Vygotsky are widely cited developmental theorists. Piaget believed that preschool-aged children are in a stage of development called preoperational thought. He described how children in this stage, exhibit five characteristics that limit their ability to fully understand and correctly interpret certain kinds of information. These characteristics are: perception based thinking, unidimensional thought, irreversibility, transductive reasoning, and egocentrism.

Vygotsky stressed the importance of language and interaction with caregivers to a preschooler's cognitive development. He suggested that a child is unable to achieve his highest level of thinking on his own- that children can improve their cognitive development through the guidance and supervision of adults.

Are They Thinking About More Than What They See?

While preschoolers still may be limited by preoperational thinking, they are making significant advancements in their cognitive abilities like the acquisition of symbolic thought. Symbolic thinking involves language, literacy and dramatic play.

Children rapidly conclude that sounds link together to make words and words represent ideas, people, and things.

Throughout the preschool years, children's language development becomes increasingly complex. There are four main areas where advancements take place: phonology, semantics, syntax, and pragmatics.

Parents, teachers, and caregivers can monitor a child's language development in these four areas to identify where some children may struggle. Children with mild to severe speech difficulties can be referred to a specially trained professional called a speech pathologist in order to work with the child or suggest helpful strategies for caregivers to improve language proficiency.

Preschoolers learn that illustrations symbolize events in a story. They eventually learn that words in print are symbols for those ideas and that meaning comes from the text. When children are learning how to write, they come to understand that letters are symbols for sounds, and that they can put these symbols together on paper in a meaningful way.

Do They Think About Thinking?

Young children have shown that they form ideas about how their own minds work. This is called theory of the mind. It is a kind of thinking where preschoolers will gain an understanding about what the mind is and how it works. This includes concepts like emotions, motivations, intentions, and remembering.

Cognitive Development and Challenging Conditions

Some preschoolers' cognitive development is impaired by challenging conditions like Down syndrome and mild to severe mental retardation. Most children with mental retardation go through the same stages of cognitive development but at a slower rate than their typically developing peers.

Teachers can best serve children with these conditions by offering extra assistance and guidance as well as making accommodations in the classroom.

Review

- Preschoolers' brains are making important connections as they mature through various stages of understanding.
- Language and literacy develop a great deal during the preschool years.
- Symbolic thinking, which includes dramatic play, language, and literacy, opens an exciting realm where children can learn about the world and express themselves.
- Most preschoolers can grasp seemingly sophisticated mental activities like emotion, motivation, intention, and memory.
- Preschoolers with special needs can learn and develop their cognitive skills in classroom settings alongside their typically developing peers.
- Caregivers can provide preschoolers with activities and assistance that are crucial to their cognitive development.

Interactive Elements

Questions For Discussion

1. Consider the following learning activities: putting together a jigsaw puzzle, sorting blocks of various shapes and colors into groups, and looking at a picture book. What are some questions and guidance a caregiver could use to scaffold a child's learning in each situation?

Students should suggest questions that would lead a child to think for herself including leading questions beginning with, "What would happen if?" and "Why do you think?" for each activity.

2. Consider each of the five characteristics of preoperational thought: perception based thinking, unidimensional thought, irreversibility, transductive reasoning, and egocentrism. Name an activity a preschooler could be encouraged to do to move to a higher level of thinking for each characteristic.

Possible answers include: sensory rich, hands-on activities for perception based thinking; taking apart a model they've built for irreversibility; activities stressing cause and effect for transductive reasoning; and dramatic play and guessing games for egocentrism.

3. Name ways in which preschoolers use symbolic thought in play, reading, and writing.

Students should indicate that symbolic thought is exhibited when children pretend that one thing represents another, a wooden block used as a telephone for example, and when they pretend to be someone else while playing dress-up or in socio-dramatic play. In reading and writing they realize that pictures stand for events in a story and that letters represent sounds used in language.

4. What are some ways that a teacher can make accommodations for cognitively challenged students in the classroom?"

Answers can include: using novel or unusual objects as well as rotating manipulatives often in order to encourage exploration and keep a child on task for a longer period of time, stocking learning centers with graded challenges where activities vary in levels of difficulty, and using props for simple pretense to help children who have a hard time with symbolic thinking.

Suggested Activities

1. Give students an opportunity to observe some preschoolers in a group setting (classroom or childcare facility). Have them bring notebooks and record some of the activities and behaviors they remember from the program.
2. Put students in the role of preschool teacher. Ask small groups to create a lesson plans that could be used in at four-year-old preschool classroom and would foster cognitive development.

Research Project

Research the theories of Jean Piaget and Lev Vygotsky regarding the development of preschool-aged children. Compare and contrast their views on how children learn during this stage.

Preschoolers: Cognitive Development

Evaluation/Testing

Fill-In-The-Blank

Fill in the blanks with the correct words from the bank at the bottom of the page.

A child's brain is made up of cells called _____, which have extensions called _____ that connect these cells to each other. These connections are called _____ and are created when a child learns something new. These connections further link with each other and _____ are created that strengthen a child's intellect.

_____ characterized the kind of thinking done by preschoolers as five characteristics that make up _____ thought. When a child cannot use logic to correct a misconception like believing that a group of ten objects that is spread out has more pieces than ten objects bunched together, this is an example of _____ thinking. When a child is asked to group blocks of various shapes and colors, and she puts all the circles into a pile and leaves the rest alone, she is using _____ thought. Preschool-aged children exhibit _____ when they cannot see things from another person's perspective and _____ when they are unable to retrace their steps in the opposite direction from which they came. An example of _____ thought is when a child mistakenly believes that he caused an event to take place. Though they may be limited by this kind of thinking, they are able to develop _____ thinking where they begin to understand that words and pictures stand for things that are not present. _____ believed that parents and caregivers can help a child learn through interaction, conversation, and scaffolding.

Word Bank:

symbolic	unidimensional	neurons	synapses
egocentrism	Jean Piaget	transductive	dendrites
preoperational	perception-based	neural	Lev Vygotsky
neural pathways			

Preschoolers: Cognitive Development

Fill-In-The-Blank Answer Key

Fill in the blanks with the correct words from the bank at the bottom of the page.

A child's brain is made up of cells called [neurons](#), which have extensions called [dendrites](#) that connect these cells to each other. These connections are called [synapses](#) and are created when a child learns something new. These connections further link with each other, and [neural pathways](#) are created that strengthen a child's intellect.

[Jean Piaget](#) characterized the kind of thinking done by preschoolers as characteristics that make up [preoperational](#) thought. When a child cannot use logic to correct a misconception like believing that a group of ten objects that is spread out has more pieces than ten objects bunched together, this is an example of [perception-based](#) thinking. When a child is asked to group blocks of various shapes and colors, and she puts all the circles into a pile and leaves the rest alone, she is using [unidimensional](#) thought. Preschool aged children exhibit [egocentrism](#) when they cannot see things from another person's perspective and [irreversibility](#) when they are unable to retrace their steps in the opposite direction from which they came. An example of [transductive](#) thought is when a child mistakenly believes that he caused an event to take place. Though they may be limited by this kind of thinking, they are able to develop [symbolic](#) thinking where they begin to understand that words and pictures stand for things that are not present. [Lev Vygotsky](#) believed that parents and caregivers can help a child learn through interaction, conversation, and scaffolding.

Word Bank:

symbolic

unidimensional

neurons

synapses

egocentrism

Jean Piaget

transductive

dendrites

preoperational

perception based

neural

Lev Vygotsky

neural pathways

Preschoolers: Cognitive Development

Multiple Choice Worksheet

Circle the best available answer for each of the following:

1) Aspects of social communication like being polite and taking turns during a conversation are examples of:

- a) semantics
- b) phonology
- c) pragmatics
- d) socio-dramatic play

2) A child who says “I didn’t mean to do it” or “She doesn’t know I am hiding in here” is illustrating:

- a) theory of the mind
- b) perception based thinking
- c) dramatic play
- d) scaffolding

3) Symbolic thought does **NOT** involve:

- a) dramatic play
- b) rough and tumble play
- c) reading
- d) writing

4) Piaget’s theory shows how a preschooler’s thinking is:

- a) limited
- b) unlimited
- c) affected by adults
- d) logical

5) Lev Vygotsky stressed the importance of preschoolers’:

- a) interactions with adults
- b) socialization with peers
- c) proper nutrition
- d) stages of social participation

6) Games involving cause and effect relationships will help with:

- a) egocentrism
- b) transductive thought
- c) perception based thinking
- d) irreversibility

7) Reading a book backwards or taking apart a model can help with:

- a) egocentrism
- b) transductive thought
- c) perception based thinking
- d) irreversibility

8) When a child learns something new:

- a) dendrites are broken down
- b) synapses shrink
- c) neural pathways are created
- d) neurons grow larger

9) Piaget’s theory consists of:

- a) three characteristics
- b) four characteristics
- c) five characteristics
- d) six characteristics

10) Between the ages of two and six, a child’s vocabulary typically grows from 200 to:

- a) 800 words
- b) 1,000 words
- c) 3,000 words
- d) 10,000 words

Preschoolers: Cognitive Development

Multiple Choice Worksheet Answer Key

Circle the best available answer for each of the following:

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Preschoolers: Cognitive Development Quiz

Match the words in the first column to the best available answer in the second column.

- | | | |
|-------|--|--|
| _____ | Play that involves children interacting with one another to create complex dramatizations that have intricate themes and story lines | 1) inclusive |
| _____ | The understanding that the amounts of objects stay the same even when their configurations have been changed | 2) conservation of continuous quantity |
| _____ | A term that means “word meaning” | 3) socio-dramatic |
| _____ | A term that means “speech sounds” | 4) scaffolding |
| _____ | The understanding that amounts of liquid or other substances stay the same even when they are placed in different containers | 5) semantics |
| _____ | Environment where children with special needs are welcomed into the classroom to learn alongside typically developing children | 6) synapse |
| _____ | A method in which adults guide a child’s learning through guidance and questions | 7) conservation of number |
| _____ | A connection from one brain cell to another | 8) phonology |

Preschoolers

Quiz Answer Key

Match the words in the first column to the best available answer in the second column.

- | | |
|--|--|
| 3) socio-dramatic | Play that involves children interacting with one another to create complex dramatizations that have intricate themes and story lines |
| 7) conservation of number | The understanding that the amounts of objects stay the same even when their configurations have been changed |
| 5) semantics | A term that means “word meaning” |
| 8) phonology | A term that means “speech sounds” |
| 2) conservation of continuous quantity | The understanding that amounts of liquid or other substances stay the same even when they are placed in different containers |
| 1) inclusive | Environment where children with special needs are welcomed into the classroom to learn alongside typically developing children |
| 4) scaffolding | A method in which adults guide a child’s learning through guidance and questions |
| 6) synapse | A connection from one brain cell to another |

Glossary

Dendrites

Extensions of a nerve cell that conduct impulses to other nearby cells

Inclusive Education

The practice that welcomes children with special needs into the classroom to learn alongside typically developing children

Irreversibility

The inability to realize that some processes can be reversed or undone

Neural Pathway

A neural tract connecting one part of the nervous system with another

Neurons

Brain cells with arm-like extensions that connect to other neurons

Perception based Thinking

The inability to use logic to correct a misconception because of the way things look or sound

Phonology

The study of speech sounds in language

Scaffolding

The use of interaction and conversation to guide the thought process; indirect hints and questions are presented to a child to prompt independent thinking

Semantics

The meaning or interpretation of words

Symbolic Thought

A kind of thinking in which symbols stand for things that are not present

Syntax

The study of the rules of sentence structure

Synapses

The small junction across which a nerve impulse passes from one nerve cell to another nerve cell

Theory of the Mind

A kind of thinking through which preschoolers will gain an understanding about what the mind is and how it works, including concepts like emotions, motivations, intentions, and remembering

Transductive Thought A thought process in which children make up cause and effect relationships to connect events without having the experience or proper knowledge to do so correctly

Unidimensional Thought A thought process in which a person has a difficult time coordinating multiple concepts or activities and tends to focus on only one feature of an object or one aspect of a problem at a time

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