

# Middle Childhood: Cognitive & Language Development



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# **Middle Childhood: Cognitive & Language Development**

## **Using This Guide/Using This Video**

- Before watching this video, ask students to think about and compare the language and thinking abilities of a kindergarten student and a sixth grade student.
- Use questions and activities for class discussion, small group activity, homework, or assessment.

# Middle Childhood: Cognitive & Language Development

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# The Program

## Summary

During the middle childhood years, children make significant cognitive advancements. During this time, most children learn to read and write. They acquire an understanding of number relationships and historical time, as well as abstract thinking. All of this development occurs in the span of six years.

In this video we will discover how language and literacy expand during these years, and examine the concepts of intelligence and memory.

### Key points:

- Children grasp concepts such as multiple classifications, map-space, and abstract thinking- all in the span of 6 years.
- Jean Piaget and Lev Vygotsky were developmental theorists who both believed that children learn best by doing, or active learning
- The common aspects of concrete operations are logic, decentration, reversibility, and causality.
- 2 common classroom practices that follow the approach of the zone of proximal development are cooperative learning and reciprocal teaching.
- Children's vocabularies expand as their semantic development takes effect, and in the end of middle childhood they understand that the words they choose and the tone in which they say them can influence others and help them accomplish their goals.
- Learning how to write and read conventionally occurs in stages.
- Traditionally, intelligence tests are given to measure a child's IQ, but research suggests that these tests may be biased.
- Howard Gardner proposed a multiple intelligence theory in which he identified at least 8 different areas where people have varying degrees of competency.
- Both short-term and long-term memory improves significantly during middle childhood.
- Learning disabilities are characterized by impairment in some aspect of learning that puts children below grade level in some academic subjects.
- Children can also be gifted or talented, needed accelerated or enrichment programs

# Theories of Development

Jean Piaget based his developmental theory on stages, where each builds upon the last. During middle childhood, children fall into the concrete operational stage. This stage is characterized by the active and appropriate use of logic. Children's logical abilities are limited to real-world, or concrete examples. They are not quite yet ready to develop abstract thinking. There are four main aspects of operational thinking. The first is logic, where children learn to not be fooled by appearances. Decentration is the ability to coordinate more than one aspect of a situation at the same time. Reversibility is the understanding that numbers or objects can be changed, and then returned to their original state. Causality is an understanding of cause and effect paired with the ability to see how a child's actions and those of others relate to consequence.

Piaget's theories did not take culture, language, and social interaction into consideration as factors that might impact development. Lev Vygotsky proposed that language and social interaction play an essential role in cognitive development.

In the primary grades, children often talk their way through a process called self-directed speech. Children name objects, and narrate their activities especially while problem solving when they use self-directed speech, and can tell themselves which information is important. Vygotsky believed that one way children can learn is within the zone of proximal development. This is a situation in which a task is just beyond a child's ability, and adults can inquire or give hints to the child to allow the child to solve the problem on their own.

Two common classroom practices that follow this approach are cooperative learning (small groups where students work together) and reciprocal teaching (dialogue between students and teachers). Students learn best if they are actively learning, which includes talking and listening, writing, reading, and reflecting. Both theorists stress the importance of "learning by doing".

# Language

A child's vocabulary is constantly expanding as their semantic development is growing. More than just learning new words, children are acquiring more adult definitions of the words they know. They create relationships among words, understand synonyms and antonyms, and understand how prefixes and suffixes affect word meaning.

Children also improve in the area of pragmatics and syntax. Syntax is the part of language used to create sentences, and pragmatics is the rules which govern the use of language used to communicate in social situations.

Some children enter school not knowing English or with very little English proficiency, and two approaches to this issue are immersion and bilingual education. The immersion strategy places non-native speaking students in classrooms where the dominant language is spoken exclusively. Sometimes teachers will use sheltered instruction to help these students, which is a style intended to provide meaningful instruction in content areas to children who are learning English.

Bilingual instruction includes a variety of strategies, and different models of bilingual education emphasize a child's native language in varying degrees. The goals are to foster an atmosphere of respect toward the language and culture of the native language and to produce fully bilingual people.

# Literacy

By the beginning of middle childhood, children are moving into the transitional stage in which they spell out words and begin to write full sentences. By the age of 9, most children move on to the conventional stage, where they begin to use correct spelling and apply spelling rules in their writing.

Reading development occurs in stages. In stage one, around 6 or 7 years old, children learn to sound out words by blending letter sounds together. Eventually, they create a sight vocabulary they recognize instantly. In stage two, (7 and 8 years old) they learn to read aloud fluently. Sometimes the meaning of what they read is lost though. Finally in stage three, (ages 9 through 13) reading becomes the main way that children learn.

# Intelligence

A general definition of intelligence is the capacity to understand the world, think rationally, and use resources effectively when faced with challenges. Measurement of intelligence is traditionally done using an IQ test. Researchers have raised concerns that tests are written in a way that is culturally biased to favor Euro-American children.

Some research divides intelligence into two types, fluid and crystallized. Fluid intelligence includes the ability to remember, reason, and process information. Crystallized intelligence includes the information, skills, and strategies that people learn and accumulate over time.

Howard Gardner proposed a theory of multiple intelligences where at least eight different areas contribute to a person's overall intelligence, in which people's competency in each area varies. He proposed that these intelligences work with each other depending upon what the individual is doing. Linguistic intelligence is the ability to use written and oral language. Logical-mathematical is the ability to use logic, and solve problems with numbers. Spatial is the ability to visualize and graphically represent objects in the mind. Musical intelligence is the ability to understand, compose, and perform music. Bodily-kinesthetic is the ability to use physical movement and their bodies to express ideas or create things. Interpersonal intelligence is the ability to interact with and be sensitive to the emotions of others and work well in groups. Intrapersonal is exhibited when a person is highly aware of their own thoughts and motivations. Naturalistic intelligence is the awareness of nature and their place with in it.

# **Memory**

Short-term memory improves significantly during middle childhood. They can hear a series of 5 or more numbers and repeat them forwards and in reverse. Long-term memory, which is stored permanently in the mind, improves as well, as children are able to construct larger more complex memories.

They are able to think about and understand their own thinking. Rehearsal or repetition of information, organizing information into patterns or groups, and mnemonic devices are all strategies that enable children to remember things more clearly.

# **Exceptional Conditions**

Learning disabilities are characterized by impairment in some aspect of learning, and approximately 1 to 3% of school-aged children are considered to have intellectual disabilities. Some children have academic difficulties in reading or writing, have dyslexia, or show a developmental delay. Some students have perceptual-motor difficulties like an inability to understand instructions, confusion caused by classroom graphs, or confusion caused by directions (left and right). Some students have faulty memory or thinking such as difficulty paying attention or a tendency to focus on a small, unimportant detail of a broad concept. Others can have language and speech delays. These children can be successfully integrated into a mainstream classroom through accommodations.

Three to five percent of school-aged children are classified as being gifted and talented, which is defined as showing high performance capability in areas such as intellectual, creative, artistic, or specific academic fields. To meet the needs of these students, schools can provide acceleration or enrichment programs within their curriculum.

## **Review**

- Children begin to use logical thinking as well as learn and retain large quantities of information.
- Their vocabularies grow and their communication skills improve.
- They learn the skills of reading and writing.
- There are several different types of intelligences.
- Students with disabilities or giftedness can both be accommodated to be successful in school

# **Interactive Elements**

## **Questions For Discussion**

1. Decentration is the ability to coordinate more than one aspect of a situation at the same time. What are some examples of this?

*Students should touch upon the fact that children are less egocentric at this stage, and may present ideas that are more complex. Tasks that involve more than one layer of thinking, the ability to compare and contrast characteristics of something, and expanding that to something creative where they use their imagination would be a start.*

2. Which theory is better? Piaget's developmental stages or Lev Vygotsky's zone of proximal development? What do they have in common, what is different about them? Is one superior to the other?

*Students can talk about Piaget's focus on stages building upon each other and the stage for the middle childhood child is the concrete operational stage, where the focus is on developing logic. Students might mention that Piaget's theory does not take culture, language, and social interaction into consideration while Vygotsky's does. Students can discuss what the zone of proximal development is, and the new ways that children solve problems during middle childhood.*

3. What are the benefits of bilingual education? Is it superior to immersion? How important is bilingual education in The United State's society? Is bilingual education sufficient in America?

*Students can discuss what is good about bilingual education and share personal examples that they may have experienced during their school years. Students can discuss the differences between the two methods of this education and bring up pros and cons for the system as it is in America today.*

4. Does Howard Gardner's theories of multiple intelligences hold merit? Do you identify with any specific areas of intelligence that he developed?

*Students can talk about the eight established intelligences that Gardner proposed and examples of their own association with the different areas. Have students discuss how having a higher level of competence in one area helps them problem solve in completely unrelated areas.*

5. Is intelligence testing biased? Should IQ tests be given in school or by psychologists/doctors?

*Students can talk about how research has shown that IQ tests can be biased, and have students talk about what they could do to overcome that bias. Students can debate on the importance of general IQ in success in school.*

## **Suggested Activities**

1. Have students research what a savant is, and discuss the different types of savants there are. Have students name some famous savants in history, films, and literature, focusing on middle childhood.
2. Have students attempt to read a sample of writing from someone who is dyslexic. You can find some here: <http://www.msu.edu/~waldenja/sample.html>.
3. Have students take an online intelligence test and see how they do! Here are some online: <http://www.psychtests.com/>, [http://www.queendom.com/tests/access\\_page/index.htm?idRegTest=1127](http://www.queendom.com/tests/access_page/index.htm?idRegTest=1127)

# **Research Project**

Have students research some learning disabilities that school-aged children in middle childhood might experience, such as dyslexia, disabilities in reading and writing, other developmental delays, perceptual-motor difficulties, and language delays. Research what is being done in classrooms to accommodate these students. Have students research what an IEP is, and have them create their own version for a specific learning disability.

# **Evaluation/Testing**

## **Middle Childhood: Cognitive & Language Development Fill-In-The-Blank**

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

A general definition of \_\_\_\_\_ is the capacity to understand the world, think rationally, and use resources effectively when faced with challenges. \_\_\_\_\_ intelligence includes the ability to remember, reason, and process information. \_\_\_\_\_ intelligence includes the information, skills, and strategies that people learn and accumulate over time. \_\_\_\_\_ memory improves during middle childhood, where children can hear a series of 5 or more numbers and repeat them forward and in reverse. With their improvement in \_\_\_\_\_ memory, children can construct complex and larger memories. Strategies such as \_\_\_\_\_, \_\_\_\_\_, or mnemonic devices can help children remember things more clearly. According to Jean Piaget's theory of development, children of the middle childhood age are in the \_\_\_\_\_ stage, which focuses on developing logical thinking. The four main aspects of this stage are logic, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. According to Lev Vygotsky, one way children learn is through the zone of \_\_\_\_\_ development. Two common classroom practices that encourage this learning are \_\_\_\_\_ learning and \_\_\_\_\_ teaching.

### **Word Bank:**

crystallized	reciprocal	rehearsal	short-term	cooperative
reversibility	long-term	causality	fluid	decentration
intelligence	proximal	repetition	concrete operational	

# Middle Childhood: Cognitive & Language 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 general definition of **intelligence** is the capacity to understand the world, think rationally, and use resources effectively when faced with challenges. **Fluid** intelligence includes the ability to remember, reason, and process information. **Crystallized** intelligence includes the information, skills, and strategies that people learn and accumulate over time. **Short-term** memory improves during middle childhood, where children can hear a series of 5 or more numbers and repeat them forward and in reverse. With their improvement in **long-term** memory, children can construct complex and larger memories. Strategies such as **repetition**, **rehearsal**, or mnemonic devices can help children remember things more clearly. According to Jean Piaget's theory of development, children of the middle childhood age are in the **concrete operational** stage, which focuses on developing logical thinking. The four main aspects of this stage are logic, **decentration**, **reversibility**, and **causality**. According to Lev Vygotsky, one way children learn is through the zone of **proximal** development. Two common classroom practices that encourage this learning are **cooperative** learning and **reciprocal** teaching.

### Word Bank:

crystallized	reciprocal	rehearsal	short-term	cooperative
reversibility	long-term	causality	fluid	decentration
intelligence	proximal	repetition	concrete operational	

# Middle Childhood: Cognitive & Language Development

## Multiple Choice Worksheet

Circle the best available answer for each of the following:

- 1) Semantic development includes learning in these areas EXCEPT:
- a) syntax
  - b) pragmatics
  - c) suffixes
  - d) punctuation
- 2) \_\_\_\_\_ is the strategy that places non-native speaking children in classrooms where the dominant language is spoken:
- a) bilingual education
  - b) sheltered instruction
  - c) immersion
  - d) reciprocal teaching
- 3) The theory of multiple intelligences was proposed by:
- a) Lev Vygotsky
  - b) Howard Gardner
  - c) Jean Piaget
  - d) Sigmund Freud
- 4) During this stage of learning to write, children begin to spell out words and begin to write full sentences:
- a) phonemic
  - b) transitional
  - c) conventional
  - d) operational
- 5) The theory of multiple intelligences includes at least this many areas:
- a) 8
  - b) 10
  - c) 5
  - d) 2
- 6) An academic learning disability would include:
- a) inability to understand instructions
  - b) dyslexia
  - c) conduct disorder
  - d) attention deficit
- 7) Approximately this percentage of school-aged children have learning disabilities:
- a) 5-10%
  - b) 3-5%
  - c) 1-3%
  - d) 6-8%
- 8) This is the ability to coordinate more than one aspect of a situation at the same time:
- a) logic
  - b) decentration
  - c) reversibility
  - d) causality
- 9) Piaget and Vygotsky both agreed that optimal learning takes place when its:
- a) in school
  - b) through reading
  - c) structured
  - d) active
- 10) At about this age, the main way children learn is through reading
- a) 10-11
  - b) 12-16
  - c) 8-9
  - d) 9-13

# Middle Childhood: Cognitive And Language Development

## Multiple Choice Worksheet Answer Key

Circle the best available answer for each of the following:

<p>1) Semantic development includes learning in these areas EXCEPT:</p> <ul style="list-style-type: none"> <li>a) syntax</li> <li>b) pragmatics</li> <li>c) suffixes</li> <li><b>d) <u>punctuation</u></b></li> </ul>	<p>6) An academic learning disability would include:</p> <ul style="list-style-type: none"> <li>a) inability to understand instructions</li> <li><b>b) <u>dyslexia</u></b></li> <li>c) conduct disorder</li> <li>d) attention deficit</li> </ul>
<p>2) _____ is the strategy that places non-native speaking children in classrooms where the dominant language is spoken:</p> <ul style="list-style-type: none"> <li>a) bilingual education</li> <li>b) sheltered instruction</li> <li><b>c) <u>immersion</u></b></li> <li>d) reciprocal teaching</li> </ul>	<p>7) Approximately this percentage of school-aged children have learning disabilities:</p> <ul style="list-style-type: none"> <li>a) 5-10%</li> <li>b) 3-5%</li> <li><b>c) <u>1-3%</u></b></li> <li>d) 6-8%</li> </ul>
<p>3) The theory of multiple intelligences was proposed by:</p> <ul style="list-style-type: none"> <li>a) Lev Vygotsky</li> <li><b>b) <u>Howard Gardner</u></b></li> <li>c) Jean Piaget</li> <li>d) Sigmund Freud</li> </ul>	<p>8) This is the ability to coordinate more than one aspect of a situation at the same time:</p> <ul style="list-style-type: none"> <li>a) logic</li> <li><b>b) <u>decentration</u></b></li> <li>c) reversibility</li> <li>d) causality</li> </ul>
<p>4) During this stage of learning to write, children begin to spell out words and begin to write full sentences:</p> <ul style="list-style-type: none"> <li>a) phonemic</li> <li><b>b) <u>transitional</u></b></li> <li>c) conventional</li> <li>d) operational</li> </ul>	<p>9) Piaget and Vygotsky both agreed that optimal learning takes place when it is:</p> <ul style="list-style-type: none"> <li>a) in school</li> <li>b) through reading</li> <li>c) structured</li> <li><b>d) <u>active</u></b></li> </ul>
<p>5) The theory of multiple intelligences includes at least this many areas:</p> <ul style="list-style-type: none"> <li><b>a) <u>8</u></b></li> <li>b) 10</li> <li>c) 5</li> <li>d) 2</li> </ul>	<p>10) At about this age, the main way children learn is through reading</p> <ul style="list-style-type: none"> <li>a) 10-11</li> <li>b) 12-16</li> <li>c) 8-9</li> <li><b>d) <u>9-13</u></b></li> </ul>

# Middle Childhood: Cognitive & Language Development

## Matching Quiz

Match the words in the first column to the best available answer in the second column about Gardner's multiple intelligence theory.

- |       |                                                                                                       |                            |
|-------|-------------------------------------------------------------------------------------------------------|----------------------------|
| _____ | The ability to use logic, and solve problems with numbers                                             | 1) intrapersonal           |
| _____ | The ability to visualize and graphically represent objects in the mind                                | 2) naturalistic            |
| _____ | The ability to understand, compose, and perform music                                                 | 3) logical<br>mathematical |
| _____ | Exhibited when a person is highly aware of their own thoughts and motivations                         | 4) bodily-<br>kinesthetic  |
| _____ | The keen awareness of nature and one's place with in it and the skill of nurturing plants and animals | 5)linguistic               |
| _____ | The ability to interact with and be sensitive to the emotions of others and work well in groups       | 6) interpersonal           |
| _____ | The ability to use written and oral language                                                          | 7) spatial                 |
| _____ | The ability to use physical movement and one's body to express ideas or create things                 | 8) musical                 |

# Middle Childhood: Cognitive & Language Development

## Matching Quiz Answer Key

Match the words in the first column to the best available answer in the second column about Gardner's multiple intelligence theory.

- |                                |                                                                                                       |
|--------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>3) logical mathematical</b> | The ability to use logic, and solve problems with numbers                                             |
| <b>7) spatial</b>              | The ability to visualize and graphically represent objects in the mind                                |
| <b>8) musical</b>              | The ability to understand, compose, and perform music                                                 |
| <b>1) intrapersonal</b>        | Exhibited when a person is highly aware of their own thoughts and motivations                         |
| <b>2) naturalistic</b>         | The keen awareness of nature and one's place with in it and the skill of nurturing plants and animals |
| <b>6) interpersonal</b>        | The ability to interact with and be sensitive to the emotions of others and work well in groups       |
| <b>5) linguistic</b>           | The ability to use written and oral language                                                          |
| <b>4) bodily-kinesthetic</b>   | The ability to use physical movement and one's body to express ideas or create things                 |

# Glossary

## Bilingual Education

A variety of strategies used to assist students who speak different languages than that of the dominant culture

## Causality

An understanding of cause and effect paired with the ability to see how a child's actions and those of others relate to consequences

## Concrete Operational Stage

Stage of cognitive development which is characterized by the active and appropriate use of logic

## Cooperative Learning

The instructional use of small groups so that student's work together to maximize their own and each other's learning

## Crystallized Intelligence

Information, skills, and strategies that people learn and accumulate over time

## Decentration

The ability to coordinate more than one aspect of a situation at the same time

## Fluid Intelligence

The ability to remember, reason, and process information

## Gifted Or Talented

Showing high performance capability in areas such as intellectual, creative, artistic, or specific academic fields

## Intelligence

The capacity to understand the world, think rationally, and use resources effectively when faced with a challenge

## Learning Disability

Impairment in some aspect of learning that can lead to putting a child below grade level in some academic subjects

## Pragmatics

The rules which govern the use of language used to communicate in social situations

## Reciprocal Teaching

A dialogue between teachers and students about specific texts where the students are taught to skim, ask questions, summarize, and make predictions

## Reversibility

The understanding that numbers or objects can be changed, and then returned to their original state

### Self-directed Speech

Verbal behavior in which children talk to themselves, naming objects and narrating their actions, especially while problem solving

### Semantic Development

Acquiring more adult definitions of words that they know by creating relationships among words, understanding synonyms and antonyms, and grasping how prefixes and suffixes affect word meaning

### Sheltered Instruction

A teaching style intended to provide meaningful instruction in content areas to children who are learning English

### Syntax

The part of language that involves creating sentences

### Zone Of Proximal Development

A situation in which a task is just beyond a child's ability

## **For More Information...**

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