

Unit 2 Understanding Addition and Subtraction

Content Area: **Math**
Course(s): **Sample Course**
Time Period:
Length: **7 Weeks - Kindergarten**
Status: **Published**

Title Section

Department of Curriculum and Instruction



Belleville Public Schools

Curriculum Guide

Mathematics Kindergarten

Unit 2: Understanding Addition and Subtraction

Belleville Board of Education

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Unit Overview

Unit 2 focuses on:

Topic 6,7 and 8:

- focus on addition as "put together" and subtraction as "take apart" or "take from".
- Represent and solve addition and subtraction word problems.
- Decompose numbers through 10.
- Fluently add and subtract within 5.
- Represent addition/subtraction through objects, drawings, fingers, and verbal explanations.
- As understanding develops, students learn how to write expressions & equations to model addition/subtraction situations.

NJSLS

MA.K.OA.A

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

MA.K.OA.A.1

Represent addition and subtraction up to 10 with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

MA.K.OA.A.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
MA.K.OA.A.3	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).
MA.K.OA.A.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
MA.K.OA.A.5	Demonstrate fluency for addition and subtraction within 5.

Exit Skills

By the end of Kindergarten Mathematics, students in the Belleville Public Schools will be able to:

- **Represent and compare whole numbers, initially with sets of objects. Students will also work toward fluency in addition and subtraction with whole numbers within 5:**

In Kindergarten students develop a foundation for numbers; they learn to count to 100 and write numbers to 20. Attention is given to numbers 11-20, with an emphasis on tens and ones, to build a foundation for place value understanding. Students begin to add and subtract in kindergarten. They represent quantities to solve problems, and they model simple joining and separating situations with sets of objects or eventually with equations such as $5 + 2 = 7$ and $7 - 2 = 5$. Students use strategies to add and subtract such as quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

- **Describe shapes and space:**

Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons; and three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

Enduring Understanding

Topic 6 focuses on:

1. Addition can be shown in different ways, such as with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations.
2. Adding one or more objects to an existing group is one interpretation of addition.
3. Putting together parts to make a whole is one interpretation of addition.
4. Adding groups can be shown in an addition expression that uses the plus sign. (+)
5. Adding parts together to make a whole is one interpretation of addition. Equations using + and = can be used to show parts of a whole.
6. Objects, drawing, counting and equations can be used to help solve addition/subtraction problems

involving adding or putting together, or subtraction and taking away.

7. Patterns can be used to solve addition problems.

Topic 7 focuses on:

1. Subtraction can be shown in different ways, such as with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations.
2. Separating parts from a whole is one interpretation of subtraction.
3. Taking parts from a whole is one interpretation of subtraction.
4. Take apart and take away subtraction situations can be shown in a subtraction expression that uses the minus sign(-).
5. Subtraction equations using - and = can be used to show subtraction situations.
6. Objects, words, drawings, counting, and equations can be used to help solve subtraction problems involving taking from.
7. Patterns can be used to help solve subtraction problems.
8. Good math thinkers know how to pick the right tools to solve math problems & how to think about words and numbers to solve problems.

Topic 8 focuses on:

1. Numbers can be broken apart in many ways. An addition equation can show how a number is broken into two parts.
2. Addition and subtraction facts have an inverse relationship. Equations using +, -, and = can be used to show parts of a whole.
3. Good math thinkers know how to think about words and numbers to solve problems.
4. Addition and subtraction facts can be solved using different strategies.
5. Numbers can be broken apart in many ways. An addition equation can show how a number is broken into two parts.
6. Objects, drawings, counting, and equations can be used to help solve addition problems involving unknown addends.
7. For any number from 1-9, there is another number to make 10.

Essential Questions

- **What type of situations involve addition?**
- **How can representing taking apart and taking from in different ways help learn about subtraction?**
- **How can decomposing numbers in more than one way help learn about addition and subtraction?**

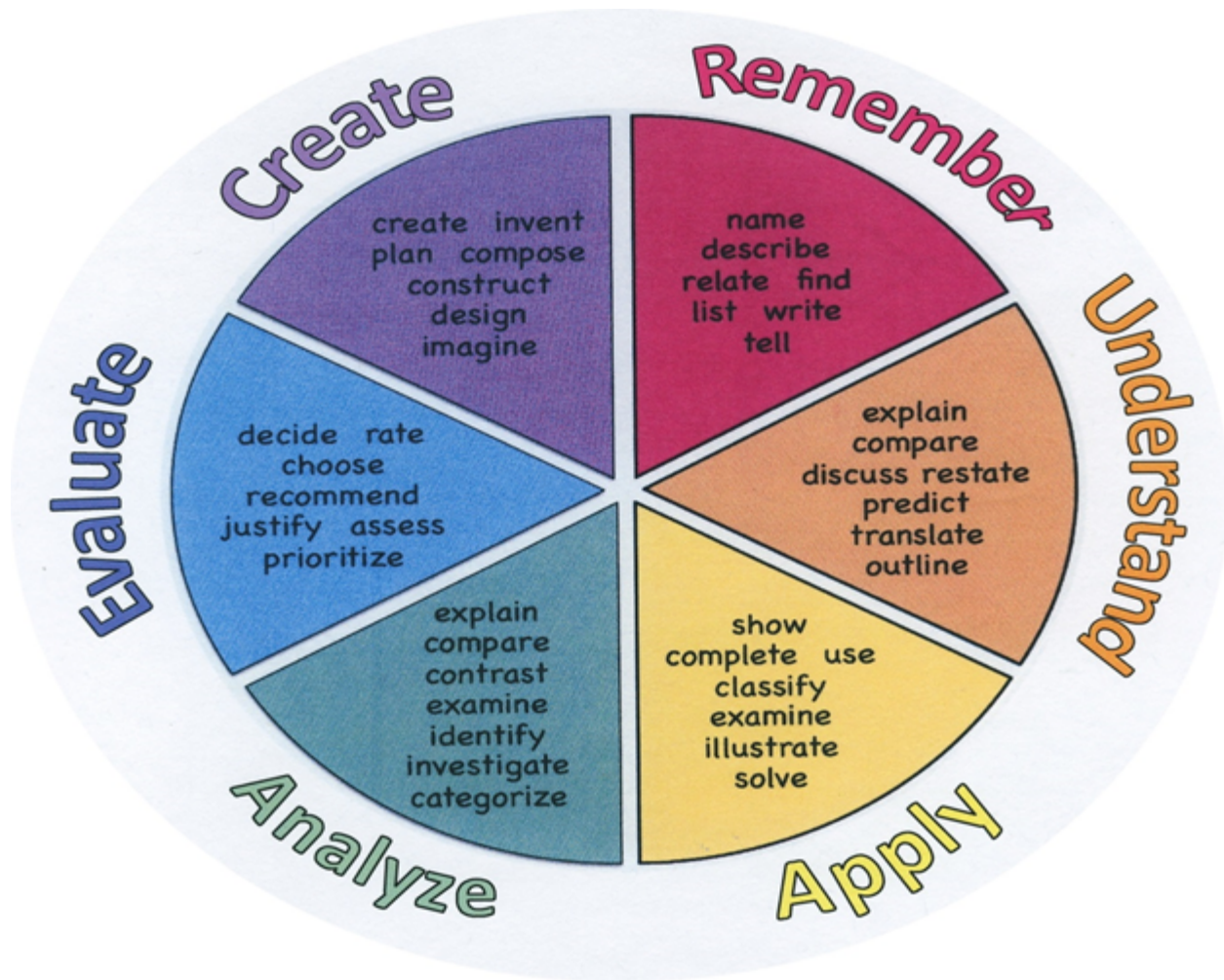
Learning Objectives

- **Represent** addition and subtraction equations through drawings.
- **Recognize** the symbols for addition and subtraction.

- **Construct** addition and subtraction equations using materials and manipulatives.

Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy. These are useful in writing learning objectives, assignment objectives and exam questions.

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct
Reproduce	Tell	Divide			Revise
	Translate	Examine			Rewrite
	Associate	Graph			Transform
	Compute	Interpolate			
	Convert	Manipulate			
	Discuss	Modify			
	Estimate	Operate			
	Extrapolate	Subtract			
	Generalize				
	Predict				



Interdisciplinary Connections

TECH.8.1.2

Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

Alignment to 21st Century Skills & Technology

Key SUBJECTS AND 21st CENTURY THEMES

Mastery of key subjects and 21st century themes is essential for all students in the 21st century.

Key subjects include:

- English, reading or language arts
- World languages
- Arts

- Mathematics
- Economics
- Science
- Geography
- History
- Government and Civics

21st Century/Interdisciplinary Themes

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

21st Century Skills

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

Technology Infusion

Smartboard

Lap- top

Differentiation

- NJDOE: Instructional Supports and Scaffolds for Success in Implementing the Common Core State Standards <http://www.state.nj.us/education/modelcurriculum/success/math/k2/>
- Monitor progress, reteach as needed, and extend student thinking.

- Assess to identify students needs and then provide appropriate support.
- As needed, provide more instruction that is on level or below grade level for the students who are struggling.
- Use vocabulary cards, vocabulary activities, vocabulary review, and vocabulary glossary.
- Utilize **Quick Check** in order to determine differentiation of instruction. **Assess and differentiate** page will prescribe the differentiated instruction activity.

Special Education

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multiple test sessions
- multi-sensory presentation
- preferential seating
- preview of content, concepts, and vocabulary
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

ELL

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarify
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of work presented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

Intervention Strategies

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of work presented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Evidence of Student Learning-CFU's

Please list ways educators may effectively check for understanding in this section.

- Admit Tickets
- Anticipation Guide
- Common benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit tests

Primary Resources

Envision Math 2.0 Volume 1

Ancillary Resources

www.scholastic.com

www.teacherspayteachers.com

www.brainpopjr.com