

HPISD First Grade Math

Unit Name	Estimated Duration	9 Weeks			
UNIT 4- ADDITION AND SUBTRACTION FACTS TO 12	3 WEEKS	1	2	3	4

Unit Overview

Students will apply their knowledge of the properties of addition and subtraction to apply strategies such as doubles, near doubles, and making ten to add and subtract numbers quickly.

Enduring Understandings

The student will understand that:	<ul style="list-style-type: none"> • Facts with sums 6 through 10 can be broken into 5 plus some more. • The number relationships of 0, 1-more-than, and 2-more-than are the basis for addition facts with a 0, 1, and 2. • Doubles facts can be associated with memorable real-world situations. • Basic addition facts that area near doubles can be found using a related doubles fact. • Ten can be shown in two parts in different ways and represented using addition number sentences. • The number relationships of 0-less-than, and 2-less-than are the basis for subtraction facts with a 0, 1, and 2. • Addition and subtraction have an inverse relationship. The inverse relationship between addition and subtraction can be used to find subtraction facts; every subtraction fact has a related addition fact. • Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence or equation.
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Concepts

Comparison and Relationships	Numbers, expressions, measures, and objects can be compared and related to other numbers, expressions, measures, and objects in different ways.
Operation Meanings and Relationships	There are multiple interpretations of addition, subtraction, multiplication, and division of rational numbers, and each operation is related to other operations.
Basic Facts and Algorithms	There is more than one algorithm for each of the operations with rational numbers. Some strategies for basic facts and most algorithms for operations with rational numbers, both mental math and paper and pencil, use equivalence to transform calculations into simpler ones.
Practices, Processes, and Proficiencies	Mathematics content and processes can be applied to solve problems.

Guiding/Essential Questions

What strategies can be used to find addition and subtraction facts?
 What is a double and how does it help you add and subtract?
 What are all of the different ways to make 10?
 What are the parts of the number sentence?

What is a subtrahend? Can you find one in an addition sentence?
Give me a non-example of a double?

Learning Targets & Prerequisites

Progressions

Prerequisite:

- Identify key vocabulary words
- Understand symbol meaning

Learning Target:

- The student will represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences.

Second Grade Connection:

- 2.7(C) Represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem.

- Draw a picture to represent addition problems for sums to 12.
- Draw a picture to represent subtraction problems.

Prerequisite:

- Solve subtraction number sentences to 10

Learning Target:

- The student will explain how to use addition to solve subtraction problems for sums to 12.

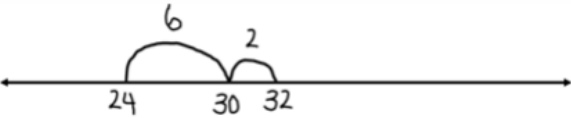
Second Grade Connection:

- 2.4(B) Add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations.

- Find different combinations of addends to make 10.
- Use the basic fact strategy of making 10 to add for sums to 12.
- know double facts to 12.

Student B:

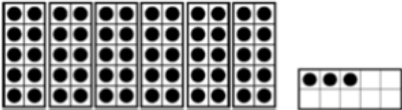
I used an open number line. I started at 24. I knew that I needed 6 more jumps to get to 30. So, I broke apart 8 into 6 and 2. I took 6 jumps to land on 30 and then 2 more. I landed on 32. So, there are 32 apples on the table.



$24 + 6 = 30$

$30 + 2 = 32$

I used ten frames. I picked out 6 filled ten frames. That's 60. I got the ten frame with 3 on it. That's 63. Then, I picked one more filled ten frame for part of the 20 that Mary put in. That made 73. Then, I got one more filled ten frame to make the rest of the 20 apples from Mary. That's 83. So, there are 83 apples in the basket.



$63 + 10 = 73$

$73 + 10 = 83$



Prerequisite:

- Understand the value of zero
- Understand more than, less than, and equal to.

Learning Target:

- The student will use properties of operations to subtract/add 0, 1, 2.

Second Grade Connection:

- use properties of operations to subtract/add 0, 1, 2 with automaticity within 20.

Prerequisite:

- Recall double facts to 10.

Learning Target:

- The student will apply basic fact strategies to add doubles and near doubles for sums to 12.

Second Grade Connection:

- 2.4(A) Recall basic facts to add and subtract within 20 with automaticity.

I used a hundreds chart. I started at 63 and jumped down one row to 73. That means I moved 10 spaces. Then, I jumped down one more row (that's another 10 spaces) and landed on 83. So, there are 83 apples in the basket.

$$63 + 10 = 73$$

$$73 + 10 = 83$$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Student C:

I knew that 10 more than 63 is 73. And 10 more than 73 is 83. So, there are 83 apples in the basket.

$$63 + 10 = 73$$

$$73 + 10 = 83$$

- Calculate basic fact strategies to add/subtract 0, 1, and 2
- Solve subtraction number sentences to 12

	<ul style="list-style-type: none"> • Recall double facts with automaticity for sums to 12 • Recall near double facts with automaticity for sums to 12 • Change some basic facts into simpler problems, such as double facts
Formative Assessments	Summative Assessments
TEKS: Readiness Standards	TEKS: Supporting Standards
1.5 (D) Represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences	<p>1.3 (D) Apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10,</p> <p>*1.5 (G) apply properties of operations to add and subtract two or three numbers.</p> <p>*1.3 (C) Compose 10 with two or more addends with and without concrete objects</p> <p>1.3 (E) Explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences.</p> <p>*1.3 (F) Determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation.</p>
TEKS Process Standards	
<p>1.1 (A) Apply mathematics to problems arising in everyday life, society, and the workplace.</p> <p>1.2 (B) Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.</p> <p>1.1 (C) Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.</p> <p>1.1 (D) Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs,</p>	

and language as appropriate.

1.1 (E) Create and use representations to organize, record, and communicate mathematical ideas.

1.1 (F) Analyze mathematical relationships to connect and communicate mathematical ideas.

1.1 (G) Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Processes and Skills:

What students should be able to DO

- Calculate basic fact strategies to add and subtract 0, 1, or 2.
- Use properties of operations to add and subtract 0. ($8-0=8$, $8+0=8$, $8-8=0$)
- Identify and solve doubles facts for sums to 12.
- Identify and solve near double for sums to 12.
- Find different combinations of addends to make 10 and some more. ($6+8$ is the same as $6+4$ (10) $+4 = 14$)
- Solve subtraction number sentences to 12.
- Draw a picture to represent addition and subtraction problems for sums to 12.

Facts:

What students should KNOW

- Basic facts can be expressed as objects.
 - Example: Jack has 4 books. Nina has 3 books. How many books do Jack and Nina have? $4+3=7$. Jack and Nina have 7 books.
- Some basic facts can be changed into simpler problems, such as doubles facts.
 - Example: $3+4$ is the same as saying double of 3 plus 1 more.
- Addition and subtraction are opposite operations.
 - Example: What subtraction sentence uses the same numbers as in $1+4=5$? The sentences $5-1=4$ and $5-4=1$ use the same numbers.
- Subtraction facts can be used to solve problems.
 - Example: Sam has 3 pillows. Donna has 2 pillows. How many more pillows does Sam have?

Topics

Envision Topic 4

Language of Instruction

addend
addition fact
addition strategy
double
near double
number sentence
subtrahend
strategy

State Assessment Connections**National Assessment Connections****Resources**

Envision Topic 4

<https://www.teacherspayteachers.com/Product/Strategies-to-Add-and-Subtract-to-20-Posters-1416267>

<http://www.apples4theteacher.com/math/subtraction/flashcards/>

