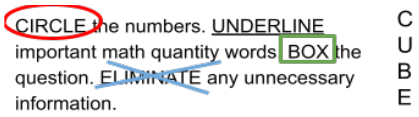
USER Problem Solving

Understand



The problem is asking

_____

_____

_____

_____

Strategy

Write the steps you will take.

First, _____

_____

Then, _____

_____

Finally, _____

_____

Execute

Show your work using numbers, diagrams, and formulas.

Review the Results

- ☐ I used the substitution method to check if it is correct.
- ☐ I checked the operations and signs.
- ☐ The answer matches the context of the problem.

My answer makes sense because _____

_____

_____

Understanding Word Problems

Samuel started with 5 carrots. Samuel's dad gave Samuel 3 more carrots. Samuel ate two carrots. Samuel also had six peas. How many carrots does Samuel have left?

QUESTION ASKS

- Quantity
- Addition
- Subtraction
- Multiplication
- Division
- Equivalent numbers
- Measurement
- Length or distance
- Perimeter
- Area
- Angle measurement
- Linear
- Slope
- Initial Value (y-intercept)
- Distance
- Exponential
- initial value
- rate of decay
- rate of growth
- Quantity at x time or distance
- Quadratic
- minimum
- maximum
- Quantity at x time or distance

ANNOTATE THE PROBLEM

CIRCLE the numbers. UNDERLINE important math quantity words. BOX the question. ELIMINATE any unnecessary information.

C
U
B
E

Samuel started with 5 carrots. Samuel's dad gave Samuel 3 more carrots. Samuel ate two carrots. ~~Samuel also had six peas.~~ How many carrots does Samuel have left?

CREATE AN INFORMATION CHART WITH KNOWNS AND UNKNOWNS

You will want to organize your data gathering tool or chart according to the type of problem.

x	y

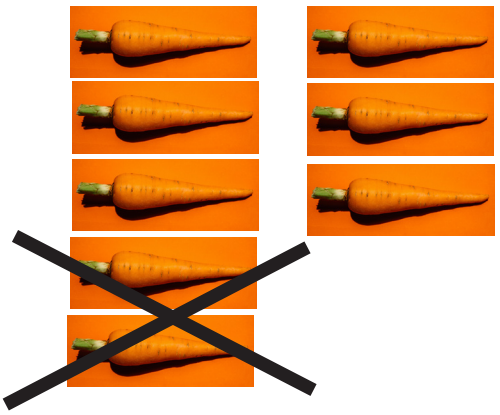
Diagram part	Measurement

# or Variable	Meaning in Context	Associated mathematical operation or language
5	carrots to start	
3	more carrots	+ addition
2	carrots eaten	- subtraction
x	carrots left	result

Creating a Strategy

VISUALIZE

Use the chart of knowns to visualize what you see.



DESCRIBE

Describe what you visualize happening in simple phrases.

5 carrots and 3 more
take away 2 carrots

TRANSLATE

Substitute the words for numbers, variables, and mathematical terms. Use the mathematical quantities chart to support you.

5 + 3 -2 = X

Addition

6+2

- and
- plus
- also
- in addition to
- combined
- sum
- total
- more than
- increased by

Multiplication

6 x 2

- of
- by
- per
- each
- times
- rate
- every
- total

Subtraction

6-2

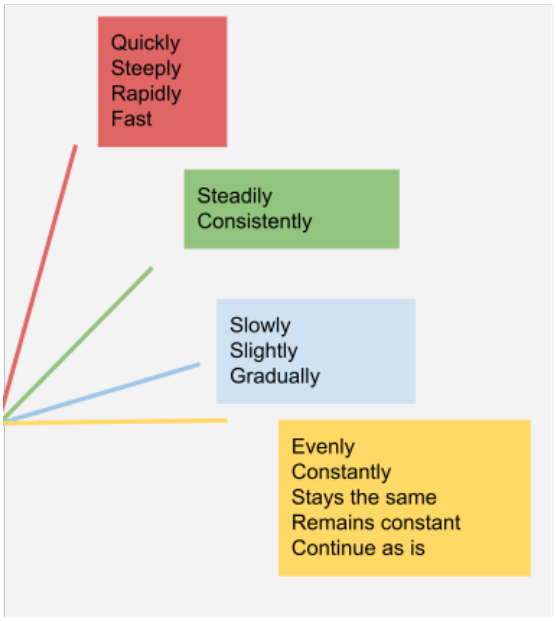
- decreased by
- fewer
- left
- less
- remaining
- minus

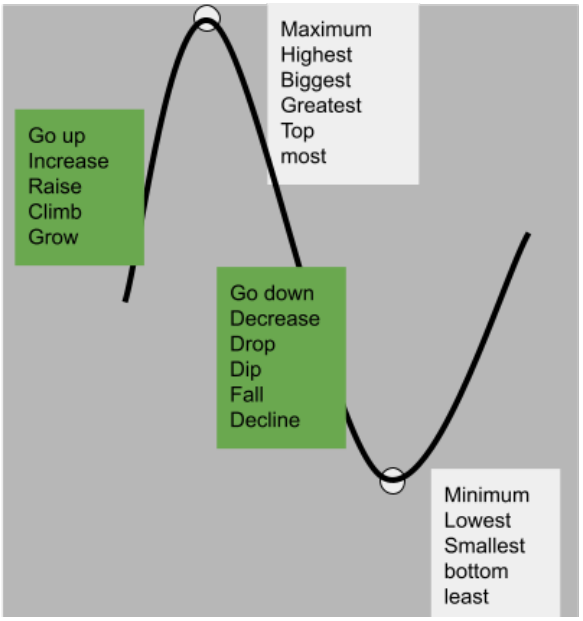
Division

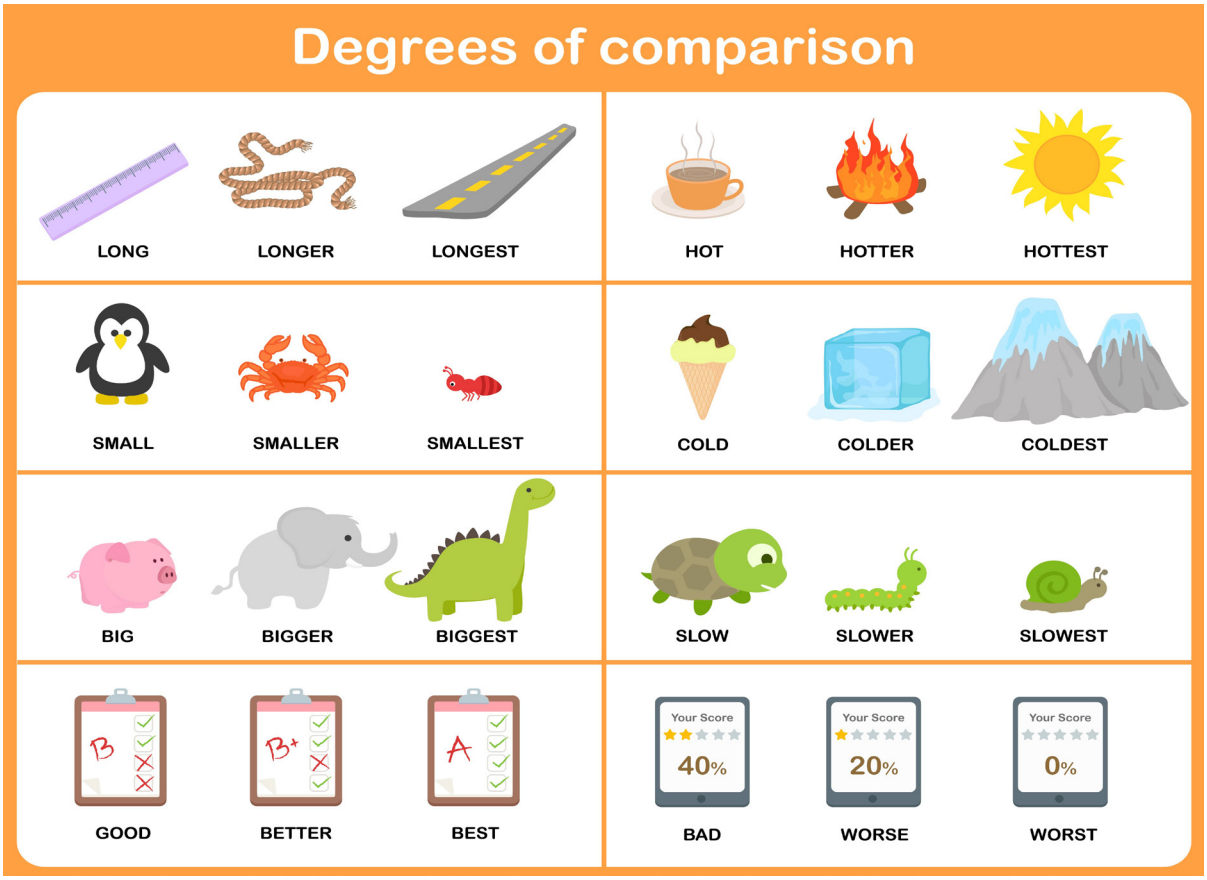
6÷2

- into
- amount of each
- equal parts
- split up
- per
- out of
- each
- every

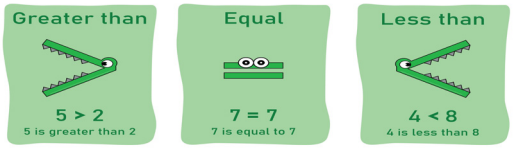
Describing Patterns







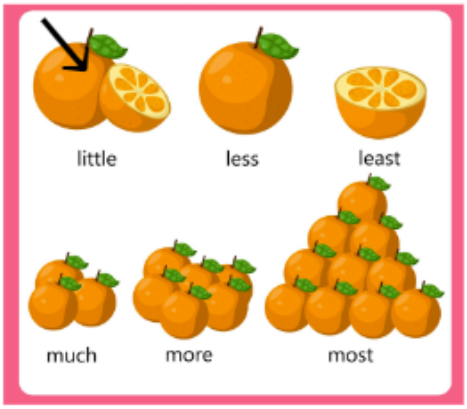
Comparing Quantities



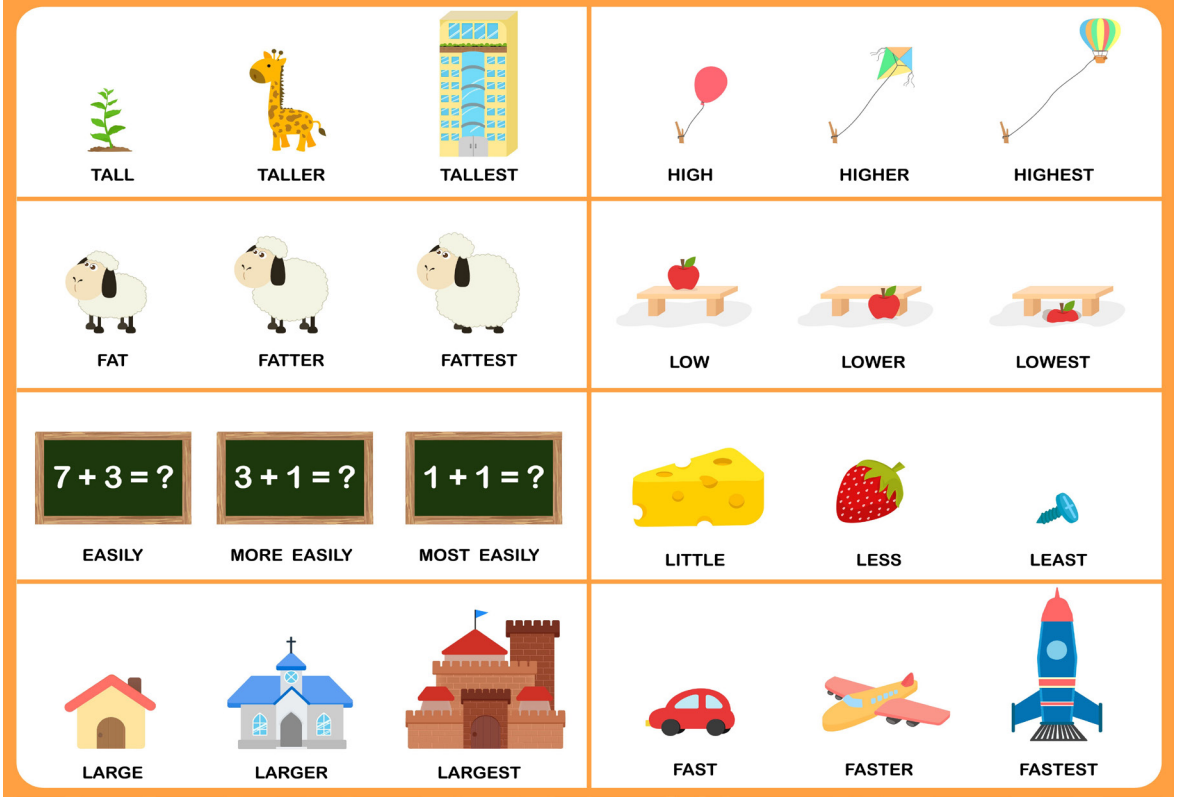
- > greater than
- ≥ greater than or equal to
- < less than
- ≤ less than or equal to

Increase ↗

Decrease



Degrees of comparison



Operations

+	=	×	÷
plus	equality	multiplication	division
≠	≈	±	≡
unequal	approximately	plus or minus	equivalent
<	≤	≥	>
is less than	is less than or equal to	is greater than or equal to	is greater than
∞	!	∴	∵
infinity	factorial	therefore	because
%	π	~	√
percent	pi	is similar to	square root
∫	|x|	Σ	Ø
integral	absolute value	sum	empty set

Addition

6+2

- and
- plus
- also
- in addition to
- combined
- sum
- total
- more than
- increased by

Multiplication

6 x 2

- of
- by
- per
- each
- times
- rate
- every
- total

Subtraction

6-2

- decreased by
- fewer
- left
- less
- remaining
- minus

Division

6÷2

- into
- amount of each
- equal parts
- split up
- per
- out of
- each
- every