# Upstate Technology Conference
Greenville, SC
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Participants will participate in creating graphic organizers with Inspiration Software for teaching math concepts as well as learn the research behind why teaching math with graphic organizers can be particularly important when teaching lower achieving students.

A Picture is Worth a Thousand Words

Teaching, Thinking, and Learning Visually
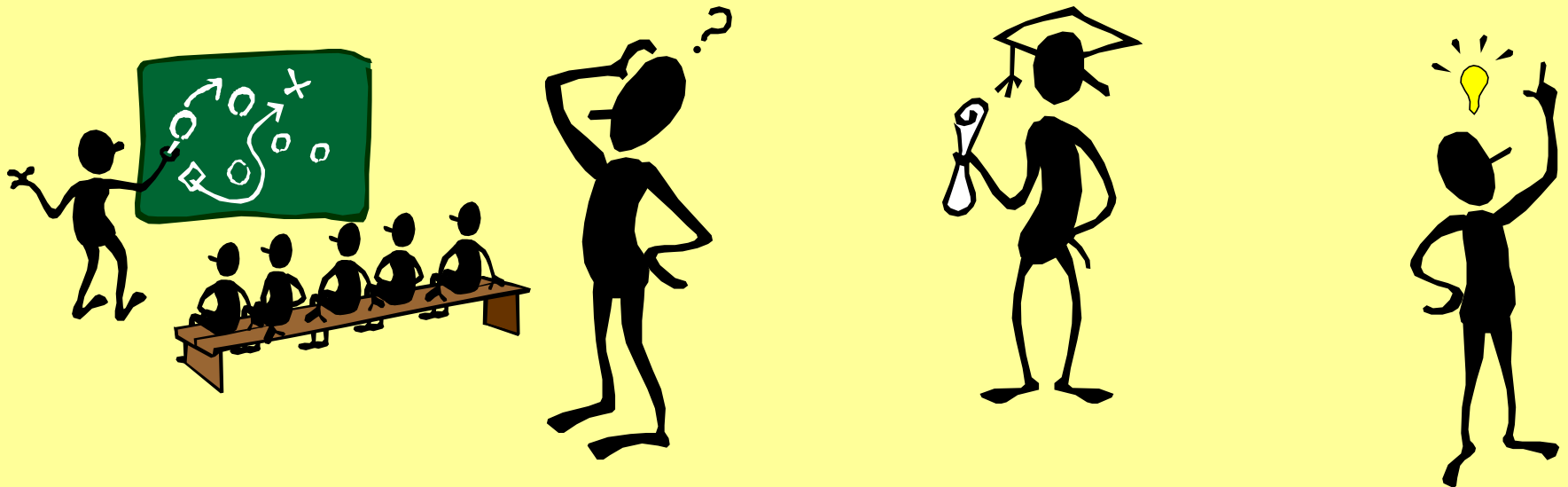
Essential Question

How can teaching with highly visual strategies increase student achievement?
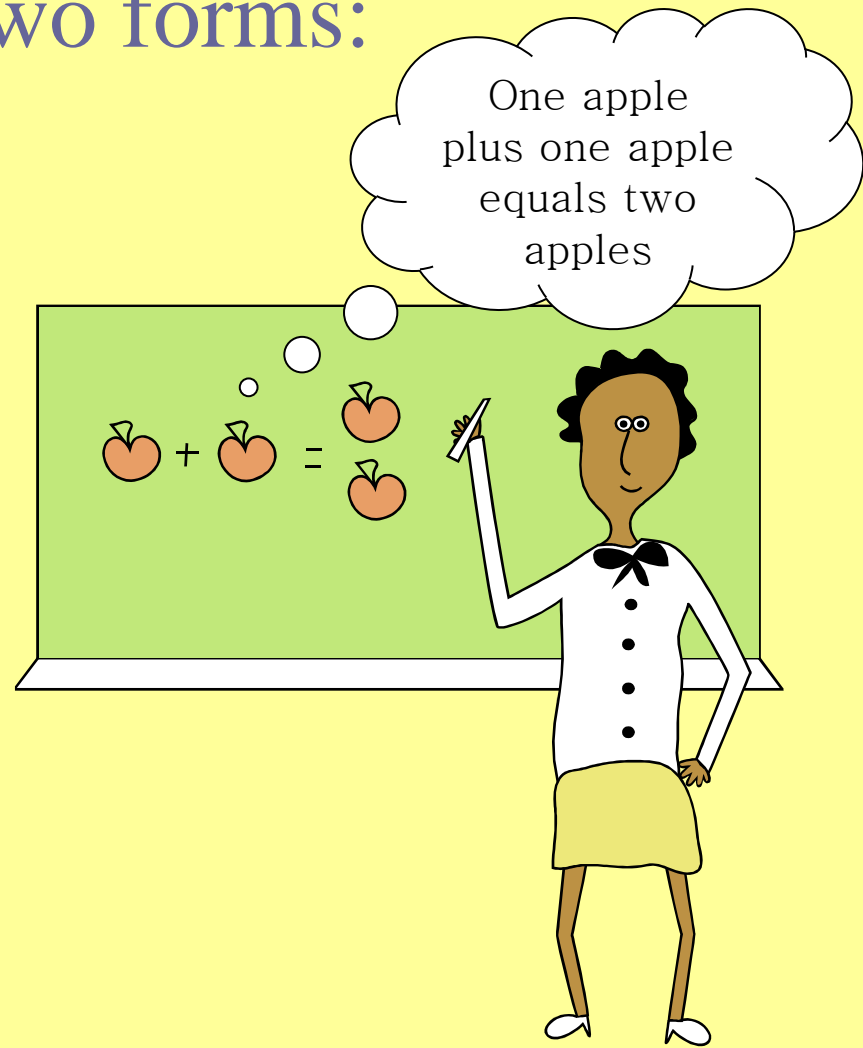
Nonlinguistic Representations

Knowledge is stored in two forms:
a linguistic form
an imagery form

The more we use both systems of representation the better we are able to think and recall knowledge.

One apple plus one apple equals two apples

POP Quiz!

You have 10 sec. to look at this material.

You cannot write anything down.

Learn the letter and corresponding shape.

a | | b | | c

d | | e | | f

g | | h | | i
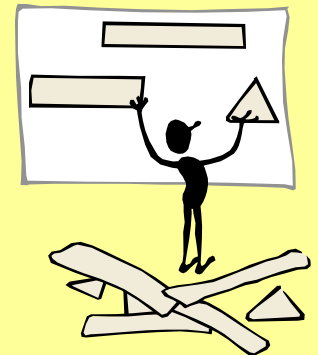
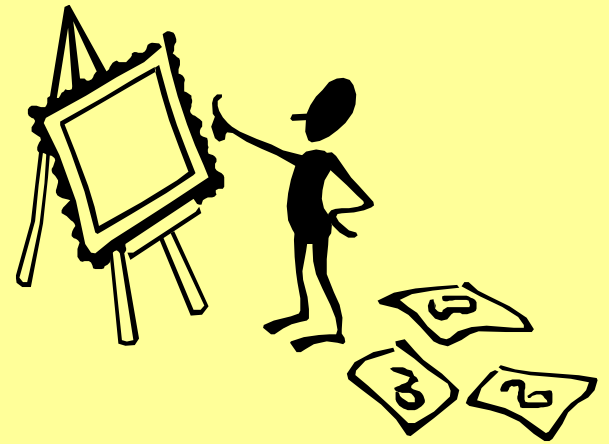# Examples of nonlinguistic representations

graphic representations
physical models
mental pictures
drawing pictures
kinesthetic activities

Quiz

1. What shape was around the "e"?

2. What letter was inside the ⌐‾‾‾⌐ **?**

3. What shape was around the "h"?

What if the material that you had to learn had been presented to you in this format?

a	b	c
d	e	f
g	h	i

Visualization: Defining the Strategy

- We live in a visual world

- 98% of what the brain takes in comes in *unconsciously* through what we see.

- About 80% of what we learn, we learn visually.

- A visual image is more memorable for the brain. It involves both the right and left hemispheres.

Tool to establish organization patterns for thinking, writing, discussion

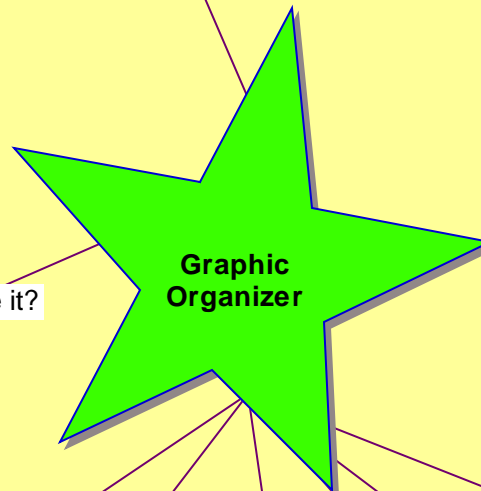**Most common uses**

Structured notetaking

What is it?

Guided Writing

Summarizing

Graphic Organizer

Overview

Why use it?

Visual Description

Raise test scores
Facilitate learning

Decision Map

Compare Contrast

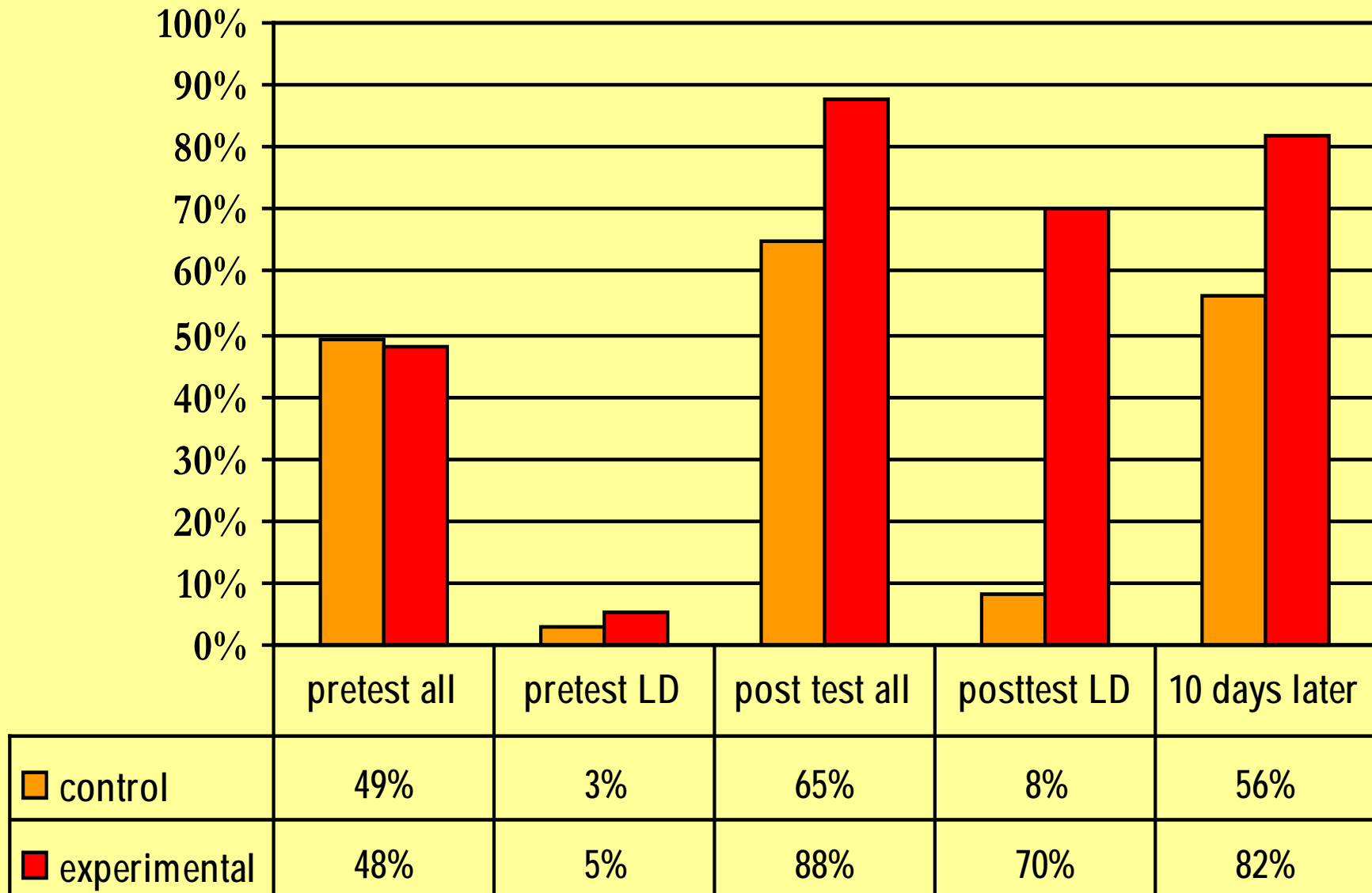Story map

KWL

Cause and Effect
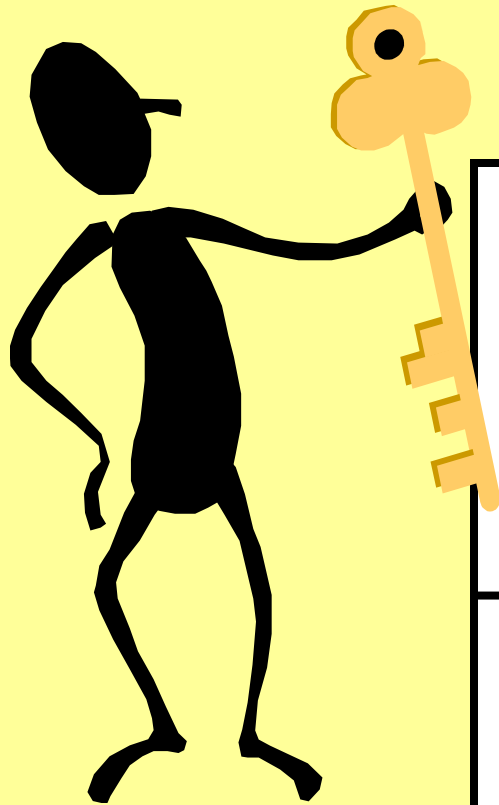
Concept Map

Examples

Research – Did you know?

The average student studying with the aide of a graphic organizer learns as much as the 90th percentile student studying the same content without the assistance of a graphic organizer.

Action research: Graphic Organizers

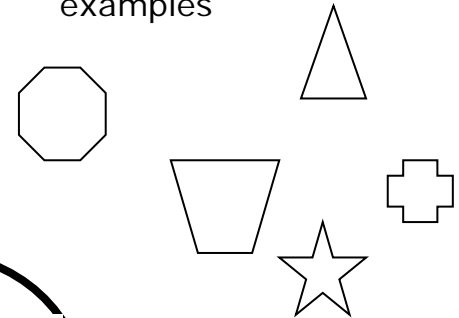|	pretest all	pretest LD	post test all	posttest LD	10 days later
☐ control	49%	3%	65%	8%	56%
☐ experimental	48%	5%	88%	70%	82%

Vocabulary is key to understanding

The Frayer Model
   is a vocabulary development activity

Plane figure formed by segments joined only at their endpoints. Each segment intersects exactly two segments.
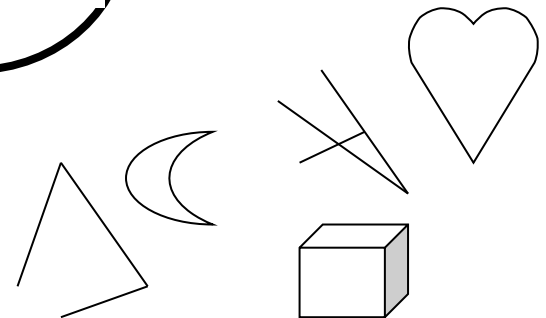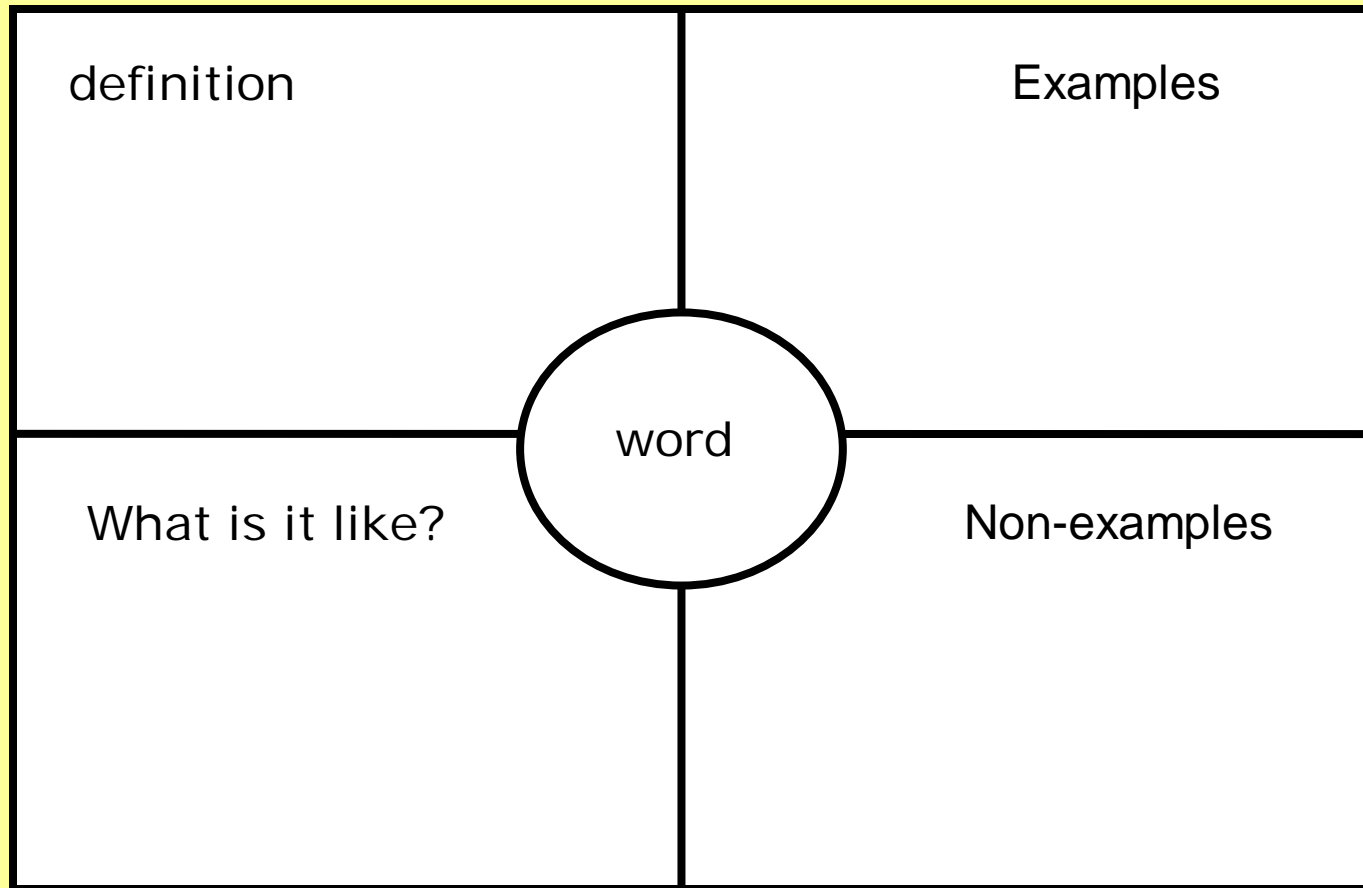
examples

polygon

Measure of 1 int. angle
= (n-2)180
        n
measure of one ext.
angle = 360
          n

Not examples

Frayer Diagram

definition	Examples
What is it like?	Non-examples

word

What is it?

What is it like?

linear equation

y=mx+b

graph is a line

b represents the y-intercept

m represents the slope

x and y are coordinates of a point on the line

y = 3x + 2
slope is 3
y-intercept is 2

y = 2x
slope is 2
y-intercept is 0

y = 1/2 x - 6
slope is 1/2
y-intercept is -6

Examples
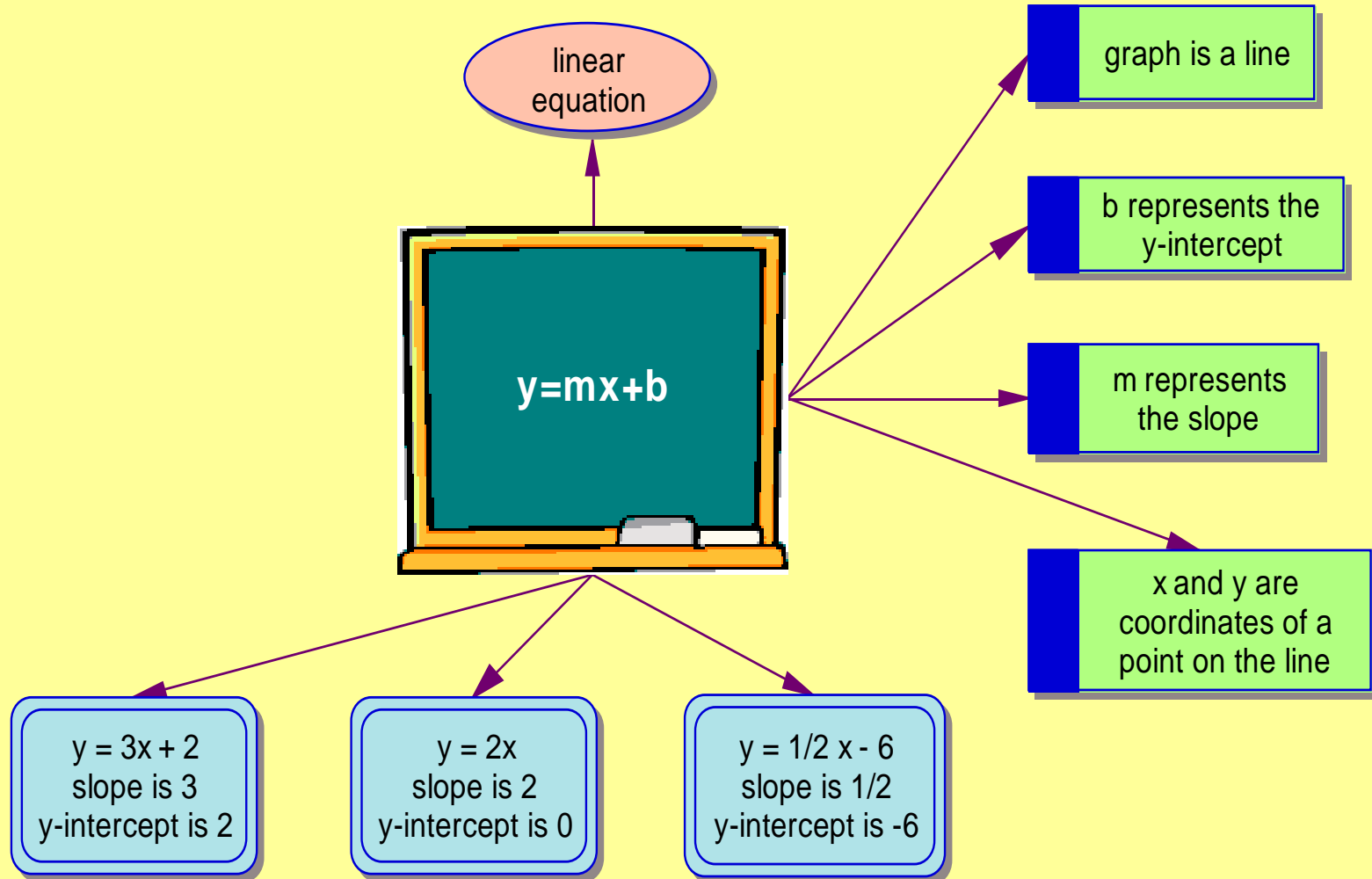
Solving a One-Step Linear Equation

EXAMPLE

identify the variable in the equation

Ask yourself, "what operation is being done to the variable?"

Ask yourself, " what is the opposite operation?'

Perform that operation on both sides of the equation

The result should be an equation with the variable by itself and a number on the other side

Check your work by substituting the solution into the original equation
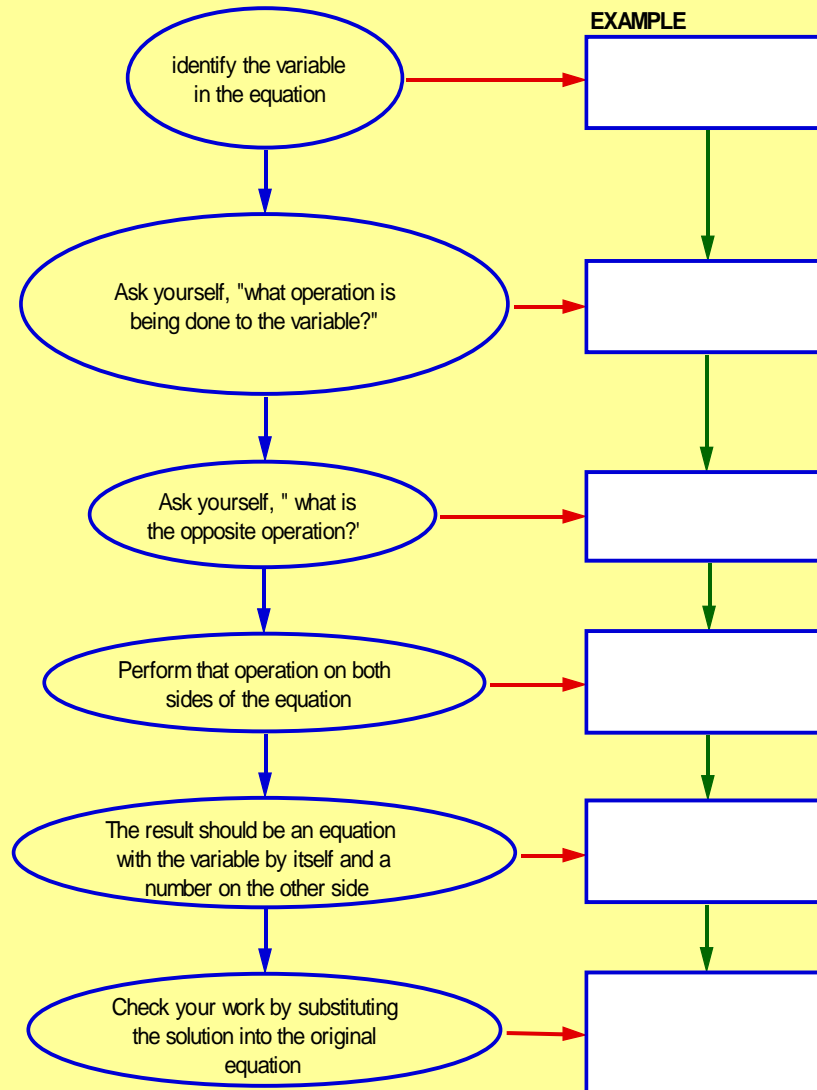
How can teaching with highly visual strategies increase student achievement?

- When a student visualizes an image, that person is reconstructing the neurological networks that were originally formed when the initial stimulus was experienced.

- By integrating more visual strategies into your lessons, you will be expanding your students' capacity for thinking and learning.

- Since the eyes take in about 70-90% of the body's sensory information, the most powerful influence on a learner's behavior in concrete, visual images.

I hear and I forget.

I see and I remember.

I do and I understand.

Since we are constantly looking for ways to increase student achievement, implementing more visual learning strategies consistently and pervasively could be an important strategy in accomplishing this goal.