Using Anchor Tasks To Ignite Learners

Facilitating Inquiry Based Math Lessons

Math Champions Professional Development

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Agenda

1. Problem-solving
2. What is an Anchor Task?
3. Explore Lessons
4. Reflect
5. Questions

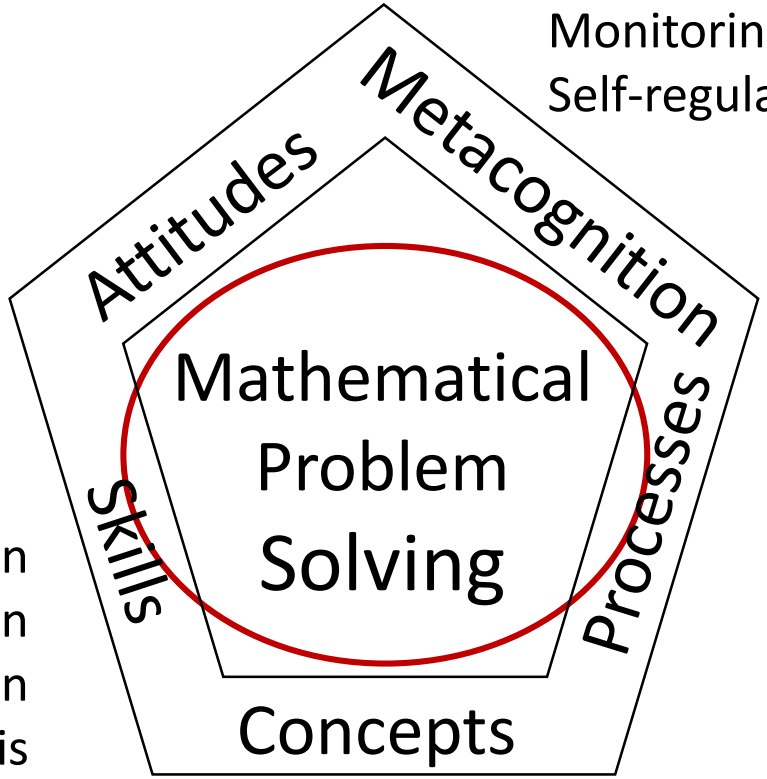
Five Big Abilities

1. Number Sense
2. Visualization
3. Communication
4. Metacognition
5. Generalization

Focus on Problem-Solving

Beliefs
Interest
Appreciation
Perseverance
Confidence

Monitoring one's own thinking
Self-regulation of learning



Numerical calculation
Algebraic manipulation
Spatial visualisation
Data analysis
Measurement
Use of mathematical tools
Estimation

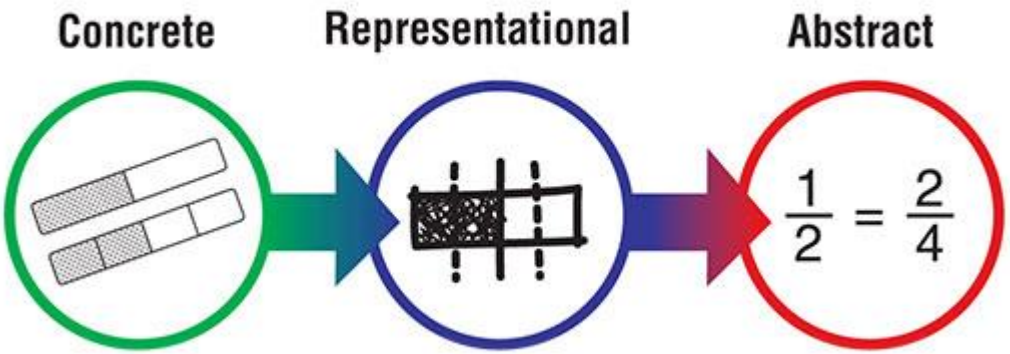
Reasoning, communication and connections
Thinking skills and heuristics
Application and modeling

Numerical
Algebraic
Geometrical
Statistical
Probabilistic
Analytical

Focus on Problem-Solving

Strong Understanding of Basics:

- ✓ C-P-A approach
- ✓ Coherence
- ✓ Focus



Focus on Problem-Solving

Students need to engage in sound mathematical practices:

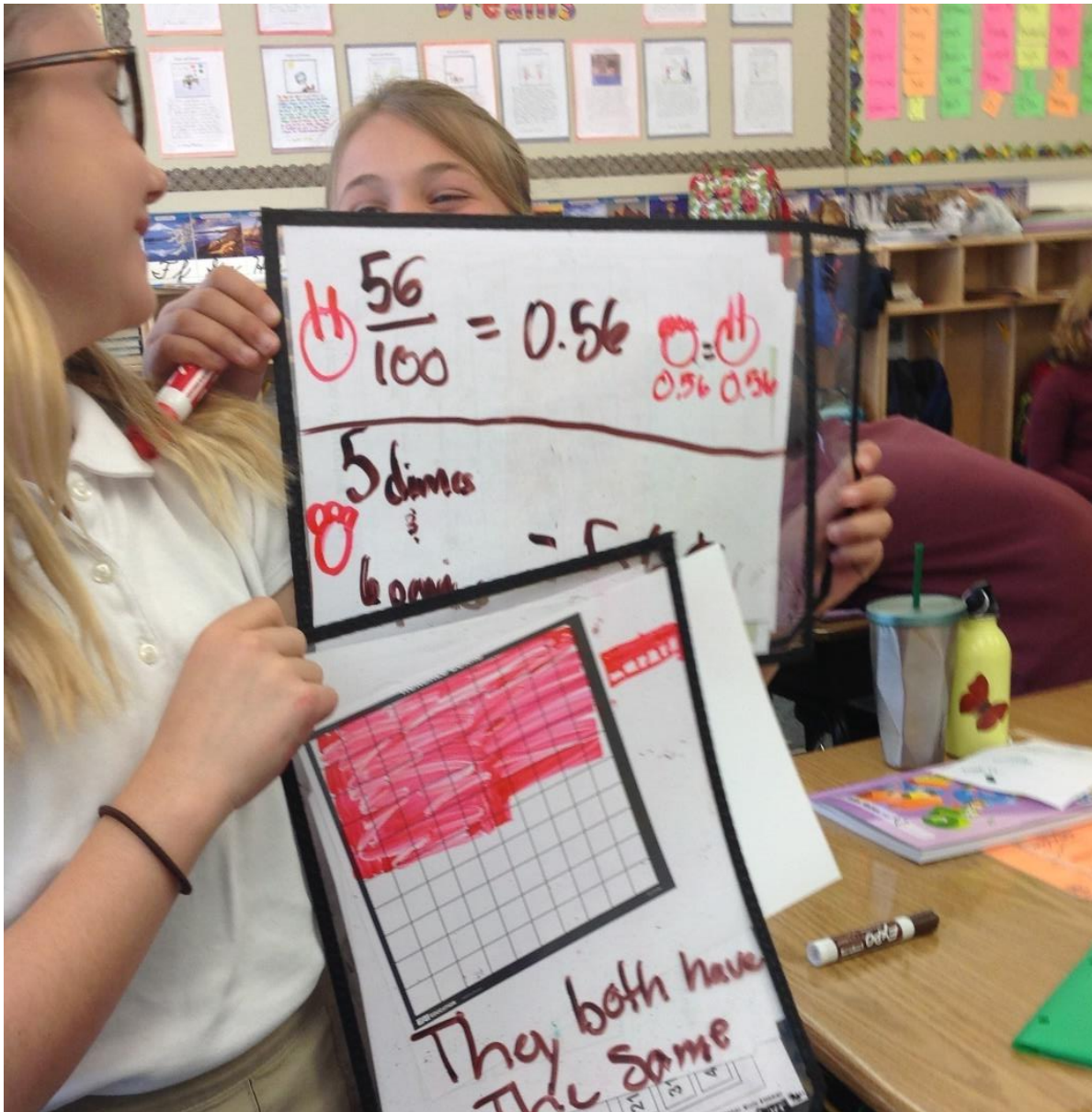
- ✓ Rigor
- ✓ Concrete activities
- ✓ Reflection
- ✓ Journaling
- ✓ Guided Practice

Anchor Task

…is the CONCRETE component of a lesson.

Anchor Task

…provides for exploration and differentiation.

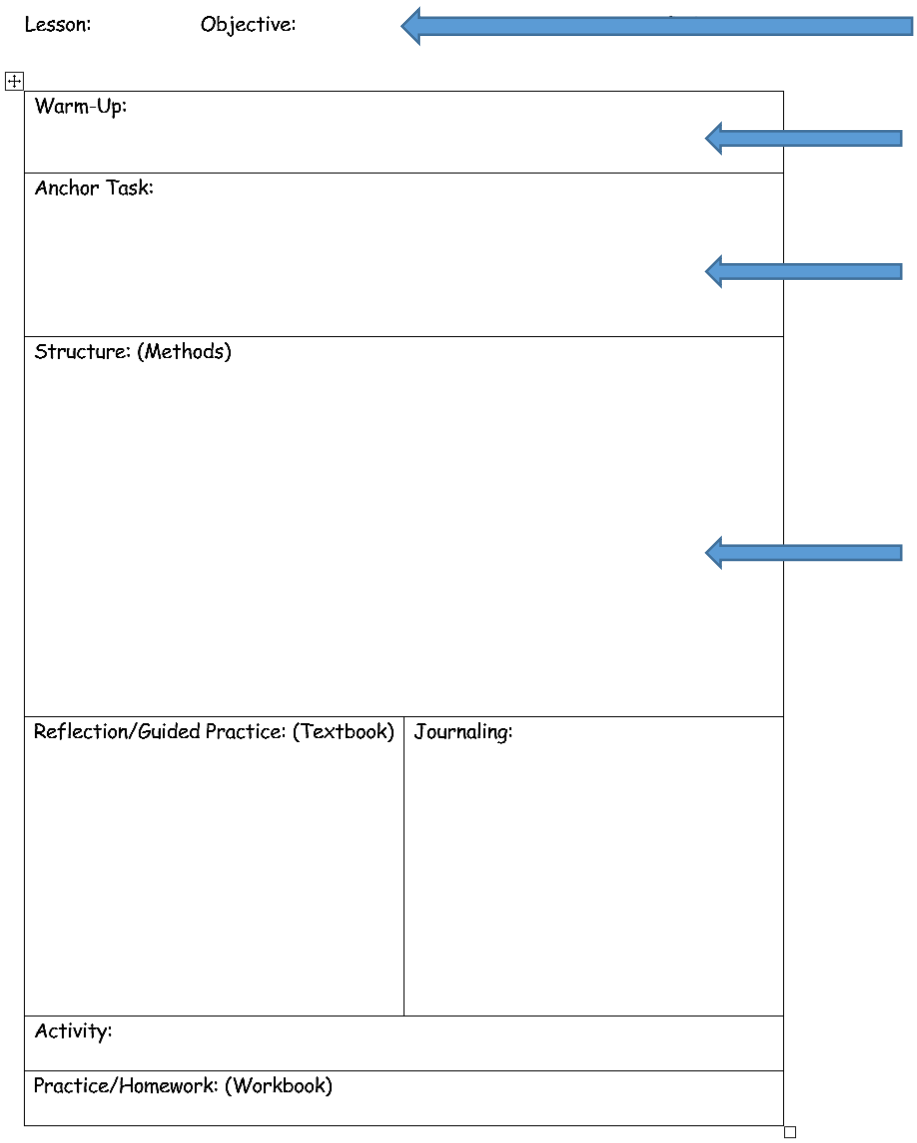


Anchor Task

Four Key Processes

- Exploring
- Structuring
- Reflecting
- Journaling

Planning for an Anchor Task



Know your objective

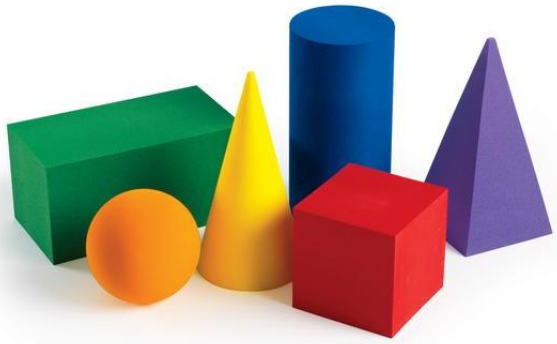
Activate prior knowledge

Create a problem for students to explore

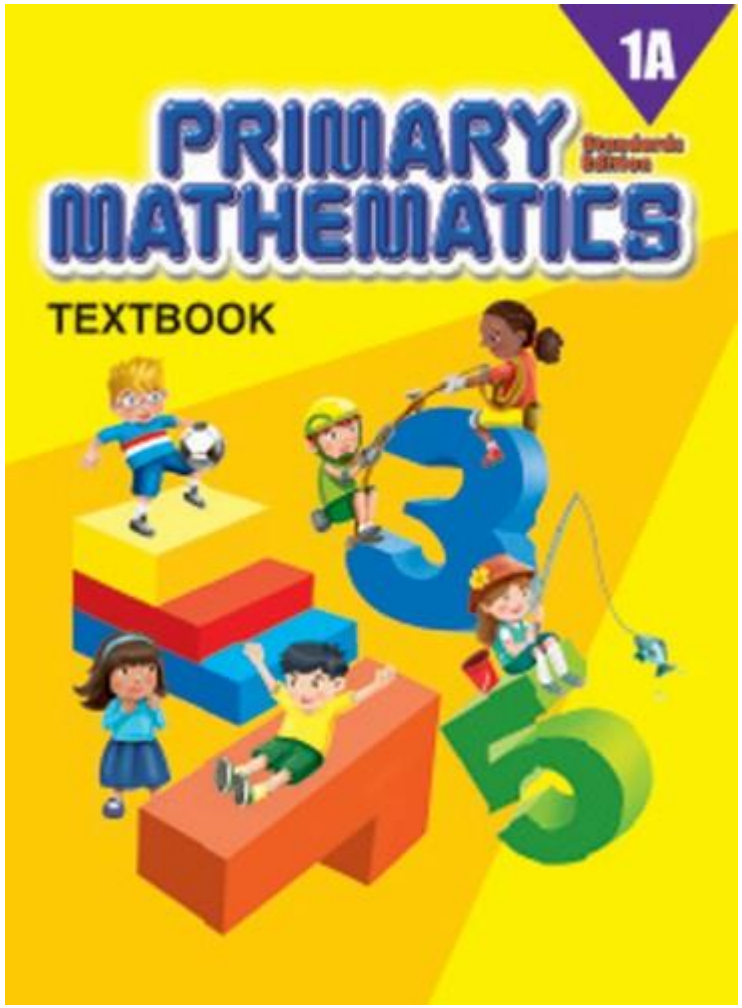
Anticipate students' responses

Preparing for an Anchor Task

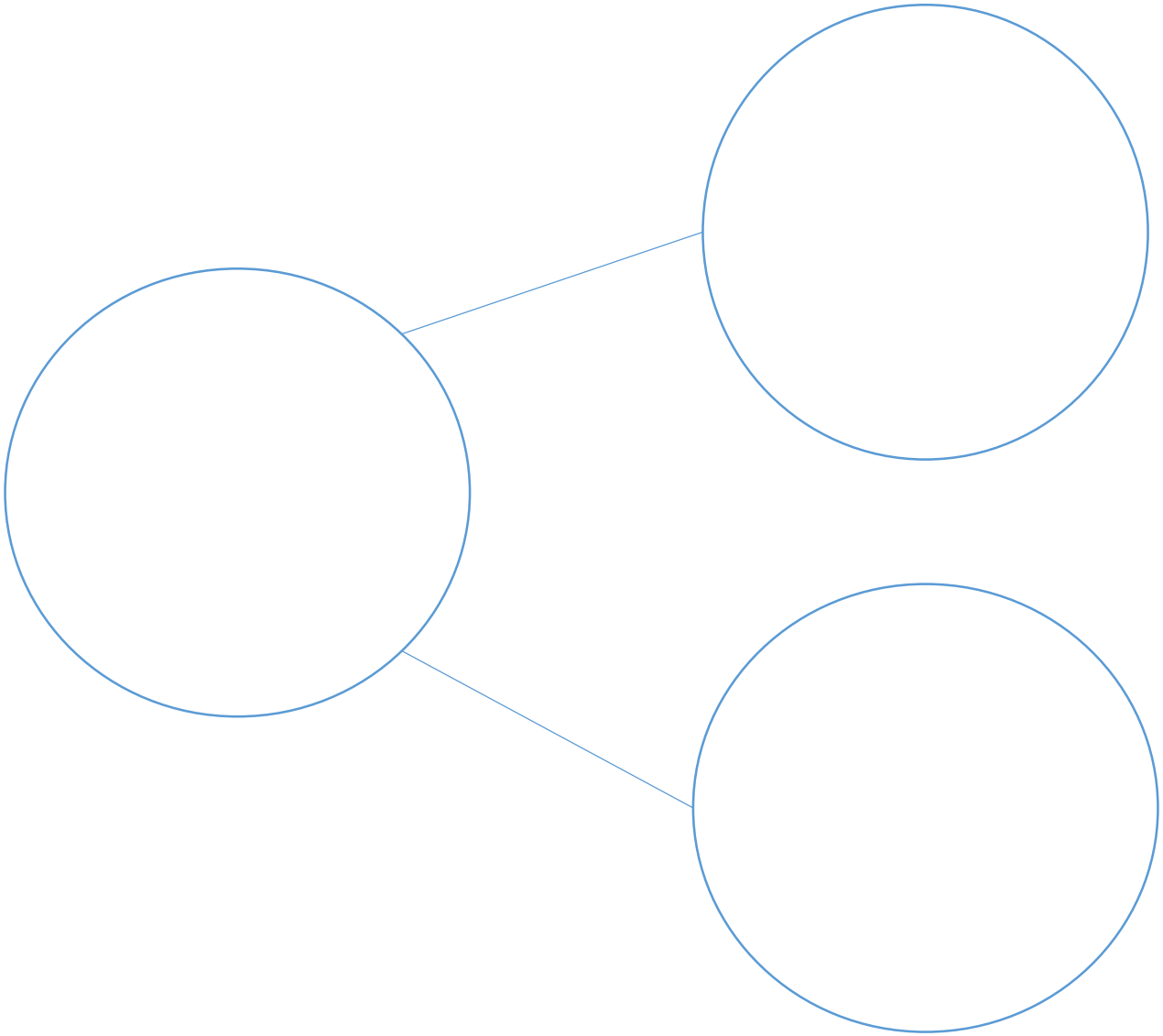
Concrete materials must be available for ALL students



1st Grade



Activate Prior Knowledge



Anchor Task

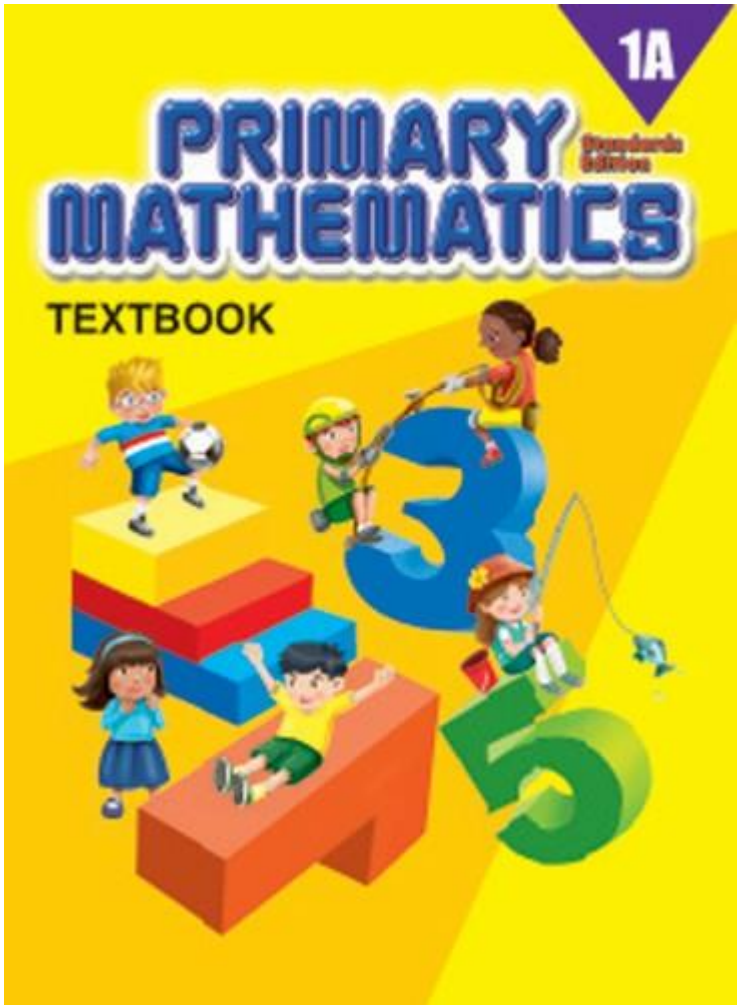
There are 9 baseballs and 4 tennis balls.

How many balls are there altogether?

Exploring and Structuring

There are 9 baseballs
and 4 tennis balls.
How many balls are
there altogether?

1st Grade

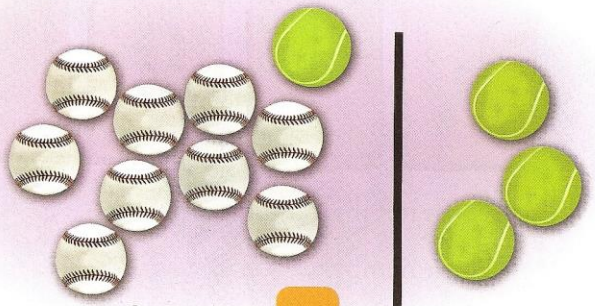


Objective:
Add two one-digit numbers using the "make 10" strategy

Reflecting

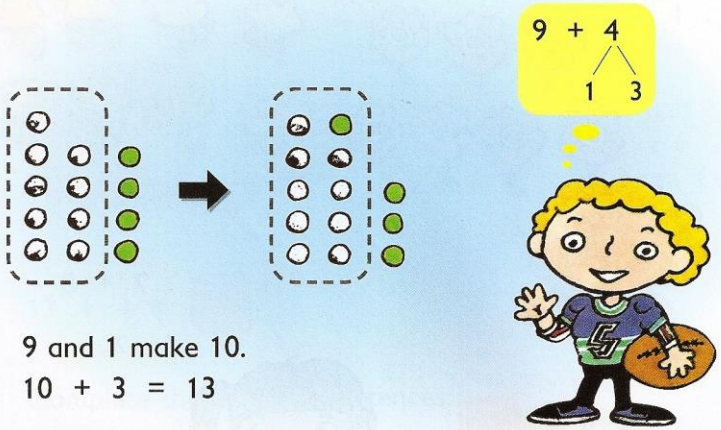
2 Addition and Subtraction

How many balls are there altogether?



9 + 4 = ☐

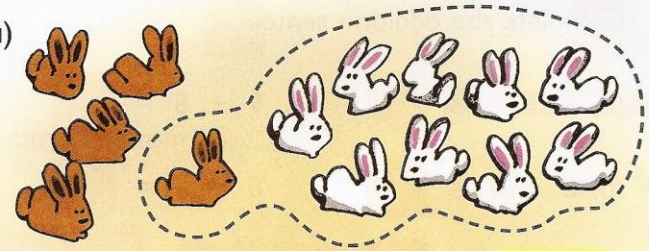
There are ☐ balls altogether.



9 and 1 make 10.
10 + 3 = 13

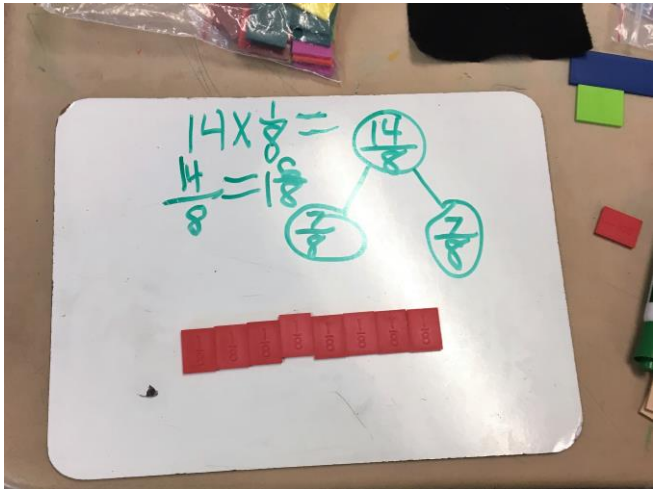
1. Add by making 10 first.

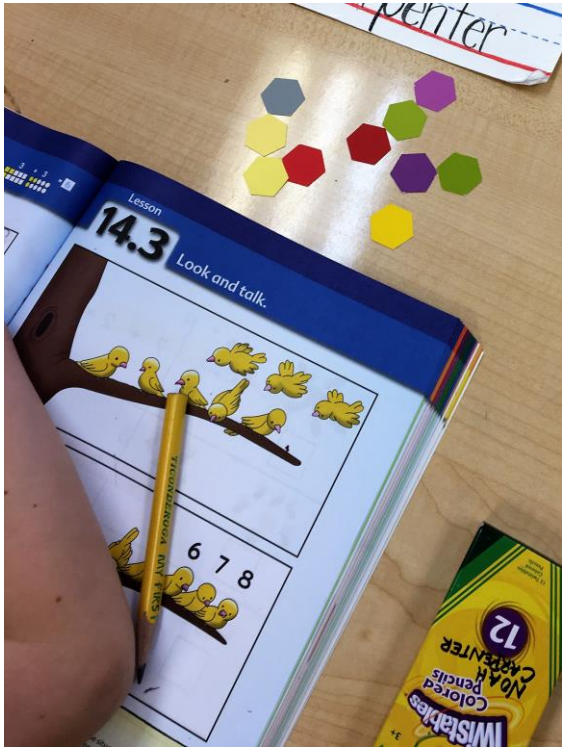
(a)



5 + 9 = ☐

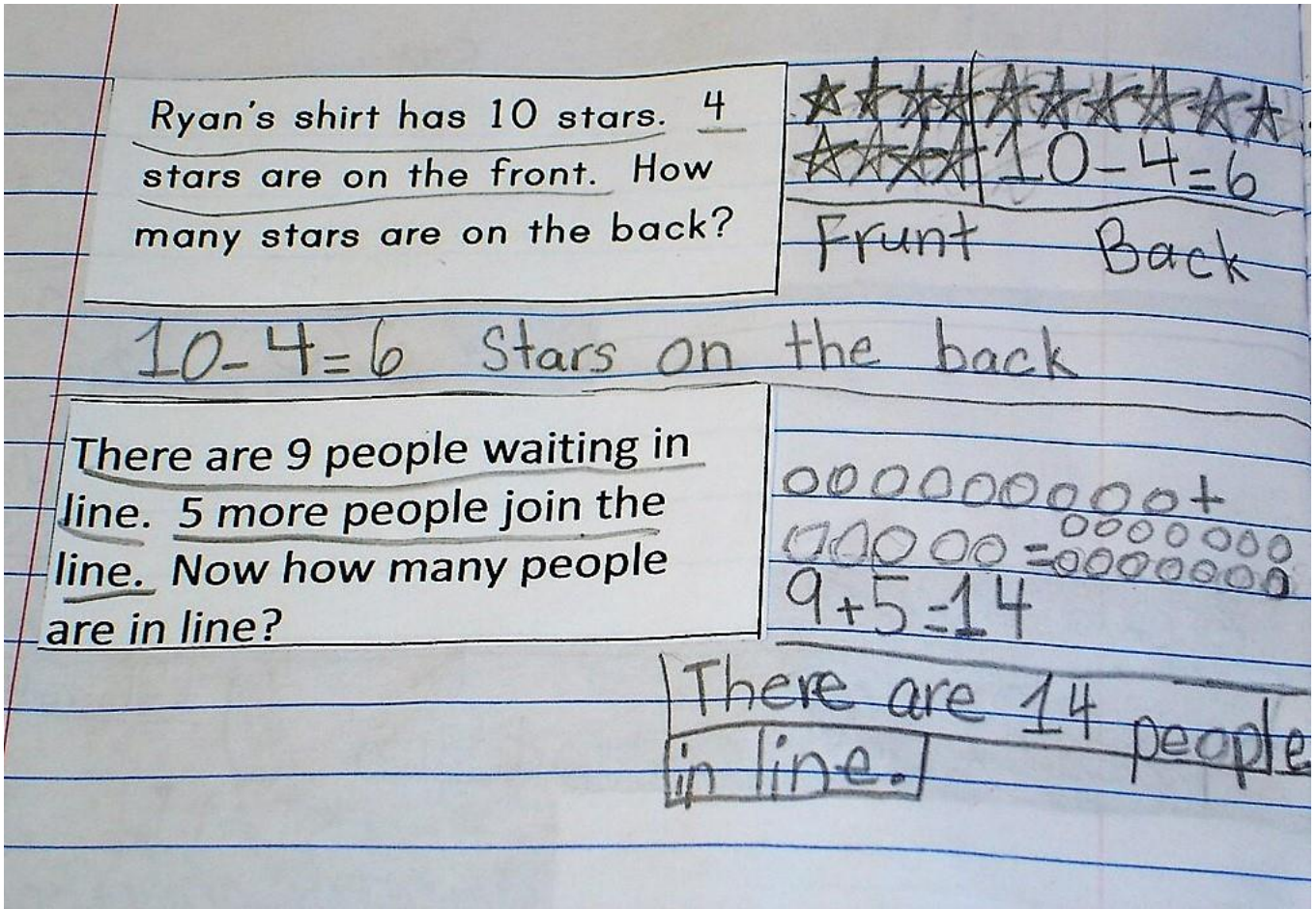
Guided Practice





Journaling

There are 7 pink roses and 9 yellow roses in the garden. How many roses altogether?



Planning the Anchor Task

2 Addition and Subtraction

How many balls are there altogether?

9 + 4 = ▢

There are ▢ balls altogether.

Planning the Anchor Task

Lesson: 1A (Numbers to 20) Objective: Addition with Make Ten Strategy Date: 11/5/13

Anchor Task:

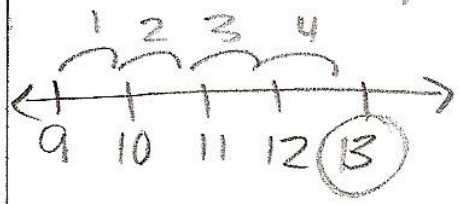
Structure: (Methods)

Method 1

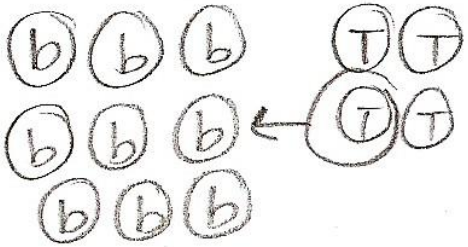
Counting On.

9, 10, 11, 12, 13

1 2 3 4



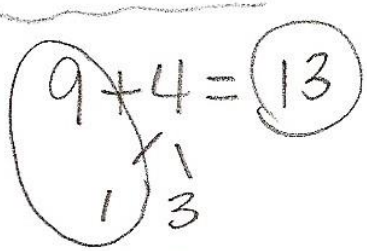
Method 2



10 and 3

13

method 3



10 + 3

*9 + 4 = 13

3 6

3 + 10

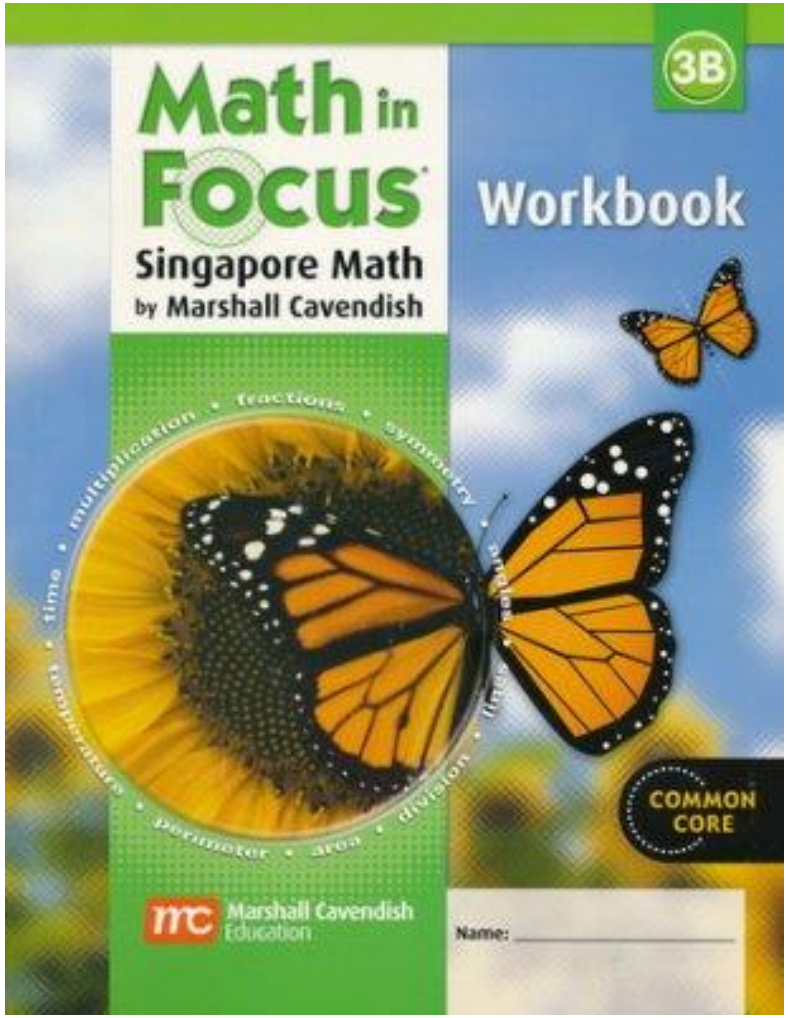
pg. 72 (2a-e)

(Use method 2 & 3 to solve)

Activity: Addition War – draw 2 # cards (extend: draw 3 cards)

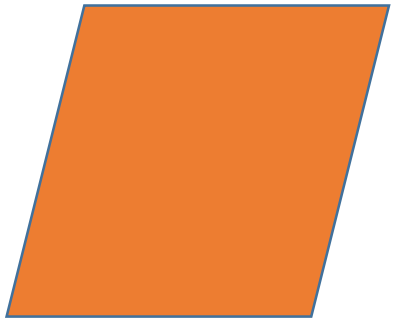
Practice/Homework: (Workbook) pgs. 101 - 104

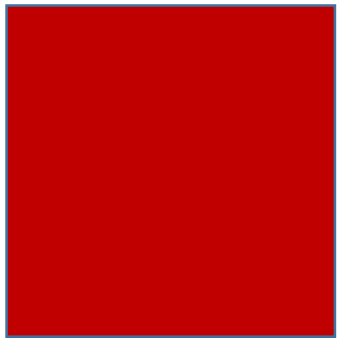
3rd Grade


3B
Math in Focus
Singapore Math
by Marshall Cavendish
Workbook
multiplication
fractions
symmetry
time
division
perimeter
area
COMMON CORE
Marshall Cavendish Education
Name:

Activate Prior Knowledge

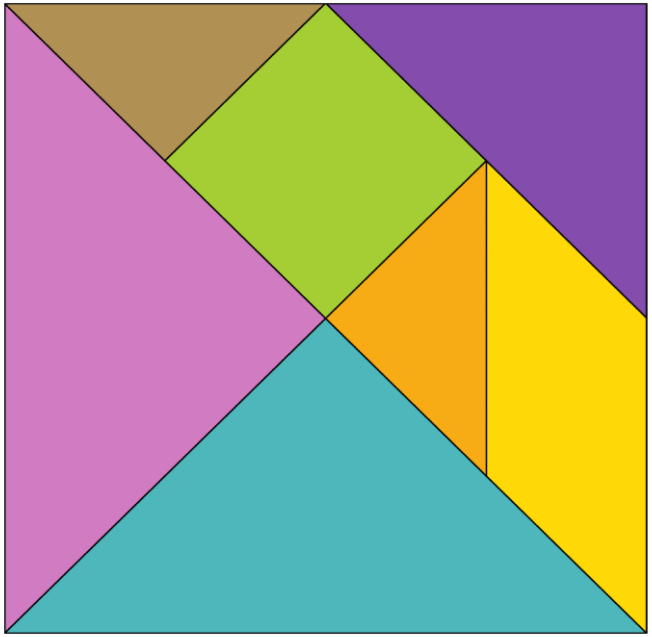
Which of these are rectangles?





Exploring and Structuring

Make as many rectangles as you can that are the same size as the square.



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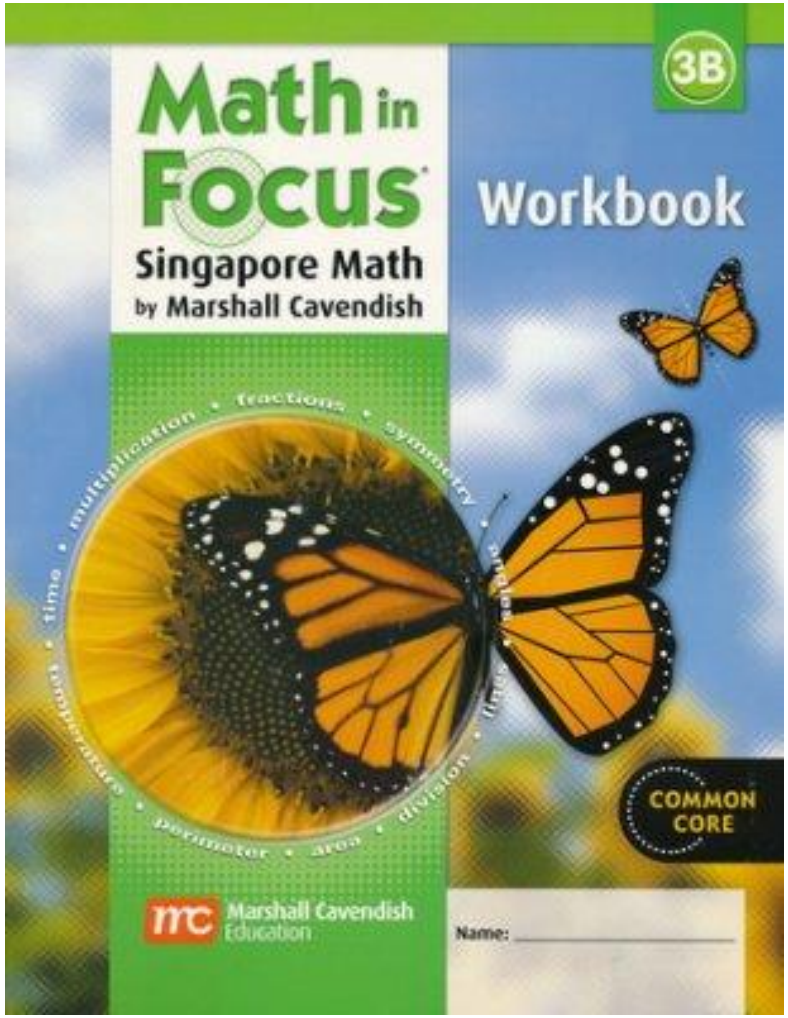
Exploring and Structuring

3rd Grade



Objectives:

- Understand the meaning of area
- Use square units to find the area of plane figures made of squares and half squares
- Compare the areas of plane figures and make plane figures of the same area

Reflecting and Guided Practice

COMMON CORE 3.MD.5.a, 3.MD.5.b, 3.MD.6, SMP.3, SMP.6

Lesson 19.1 Area

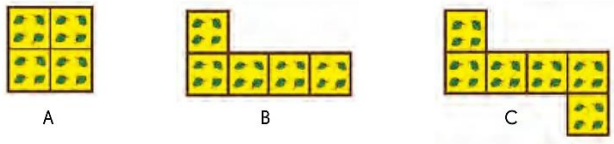
Vocabulary
area
square units

Lesson Objectives

- Understand the meaning of area.
- Use square units to find the area of plane figures made of squares and half squares.
- Compare areas of plane figures and make plane figures of the same area.

Learn **Count whole square tiles to find area.**

Look at the figures.



Count the number of square tiles in each figure.
Figure A is made up of 4 square tiles.
Figure B is made up of 5 square tiles.
Figure C is made up of 6 square tiles.

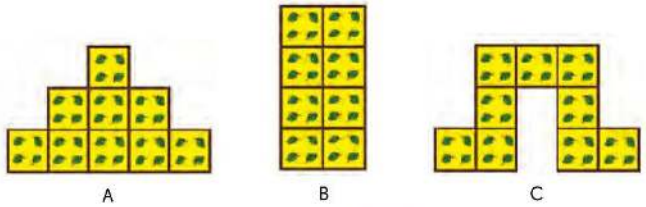
The amount of surface covered by the tiles is the area of each figure.

Let each square tile stand for 1 unit. Figure B is made up of 5 square tiles. So, its area is 5 square units. Figure C has the largest area. Figure A has the smallest area.

Area is the amount of surface covered. It is measured in **square units**.

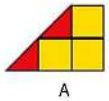
Guided Learning

Look at the figures and answer the questions.



1. How many square tiles make each figure? 9; 8; 9 square tiles
2. Each tile is one square unit. What is the area of each figure? 9; 8; 9 square units
3. Which figure has the smallest area? B
4. Which two figures have the same area? A and C

Learn **Using square units and half-square units to measure area.**



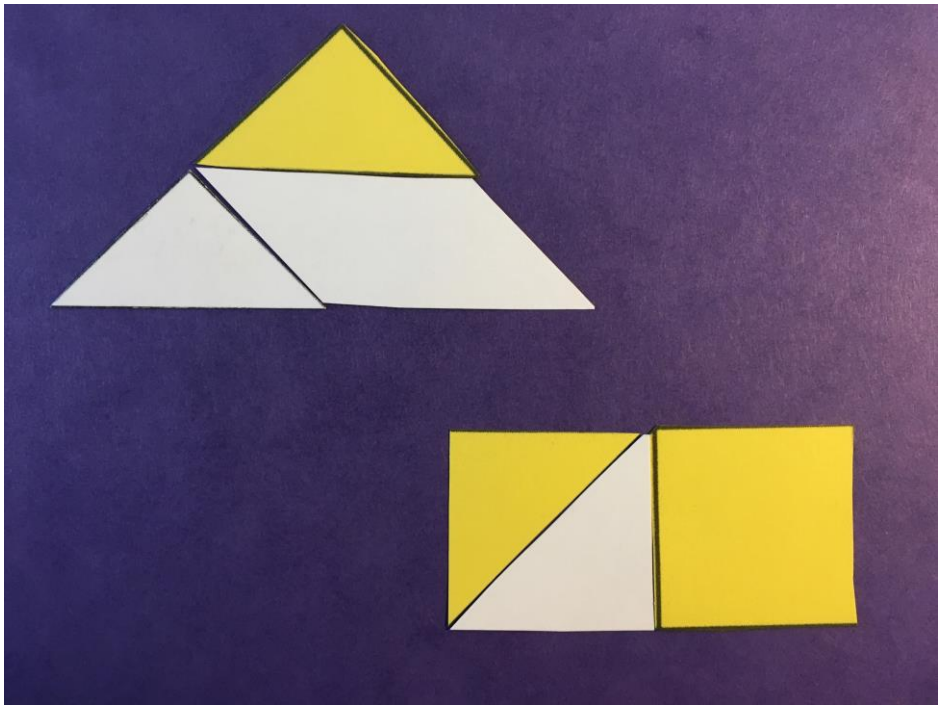
is 1 square unit.
is $\frac{1}{2}$ square unit.
is equal to .
make 1 square unit.

Figure A is made up of squares and half-squares.

Figure A is made up of 4 squares of the same size. Its area is 4 square units.

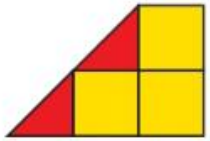
Journaling

Using two Tangram sets, make a rectangle and a triangle with the same area and record them in your journal.



Designing the Anchor Task

Learn **Using square units and half-square units to measure area.**



A

 is 1 square unit.

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 is equal to  .

 make 1 square unit.

Figure A is made up of squares  and half-squares  .

Figure A is made up of 4 squares of the same size. Its area is 4 square units.

5th Grade

Activate Prior Knowledge

Write each of the following as an equation or fraction:

1 divided by 3

5 divided by 2

13 divided by 5

Exploring and Structuring

A baker poured 4 kilograms of oats equally into 3 bags. What is the weight of each bag of oats?

Exploring and Structuring

A baker poured 4 kilograms of oats equally into 3 bags. What is the weight of each bag of oats?

5th Grade

engage^ny

Our Students. Their Moment.

EUREKA MATH

Objective:
Interpret a fraction as division

Reflecting and Guided Practice

Discuss efficiency of methods to solve 4 ÷ 3 and practice related problems on individual whiteboards.

Journaling

Journal # _____ Date:_____

Title:_____

Problem:
If the baker doubles the number of kilograms of oats to be poured equaling into 3 bags, what is the weight of each bag of oats now?

Designing the Anchor Task

Concept Development (33 minutes)

Materials: (S) Personal white board

Problem 1

A baker poured 4 kilograms of oats equally into 3 bags. What is the weight of each bag of oats?

T: In our story, which operation is needed to find the weight of each bag of oats?

S: Division.

T: Turn and discuss with your partner how you know, as well as what the division expression would be.

S: When you share equally, it means taking what you have and dividing it into equal groups. → The total is 4 kilograms of oats being divided into 3 bags, so the division expression is 4 divided by 3. → The whole is 4, and the divisor is 3.

T: Say the division expression.

S: 4 ÷ 3.

Questioning for Differentiation

- ✓Can you prove it?
- ✓How do you know?
- ✓Can you solve it another way?
- ✓Can you draw a picture or make a model to solve it?
- ✓I wonder how this is like what we practiced yesterday?
- ✓Can you find a connection with something you already know?
- ✓What if…?

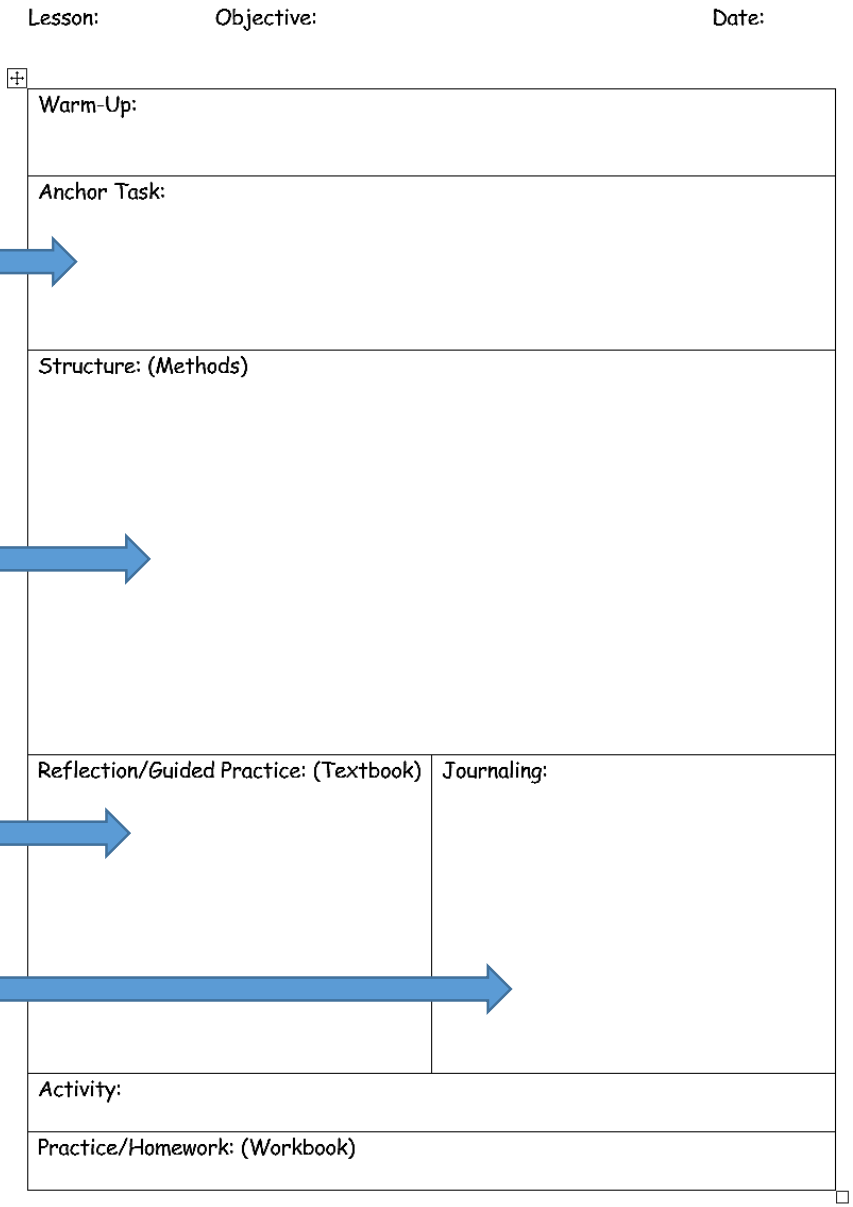
Four Key Processes

Exploring

Structuring

Reflecting

Journaling



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