Ratios and Proportions

What Are They and How to Solve Them

LESSON OBJECTIVE

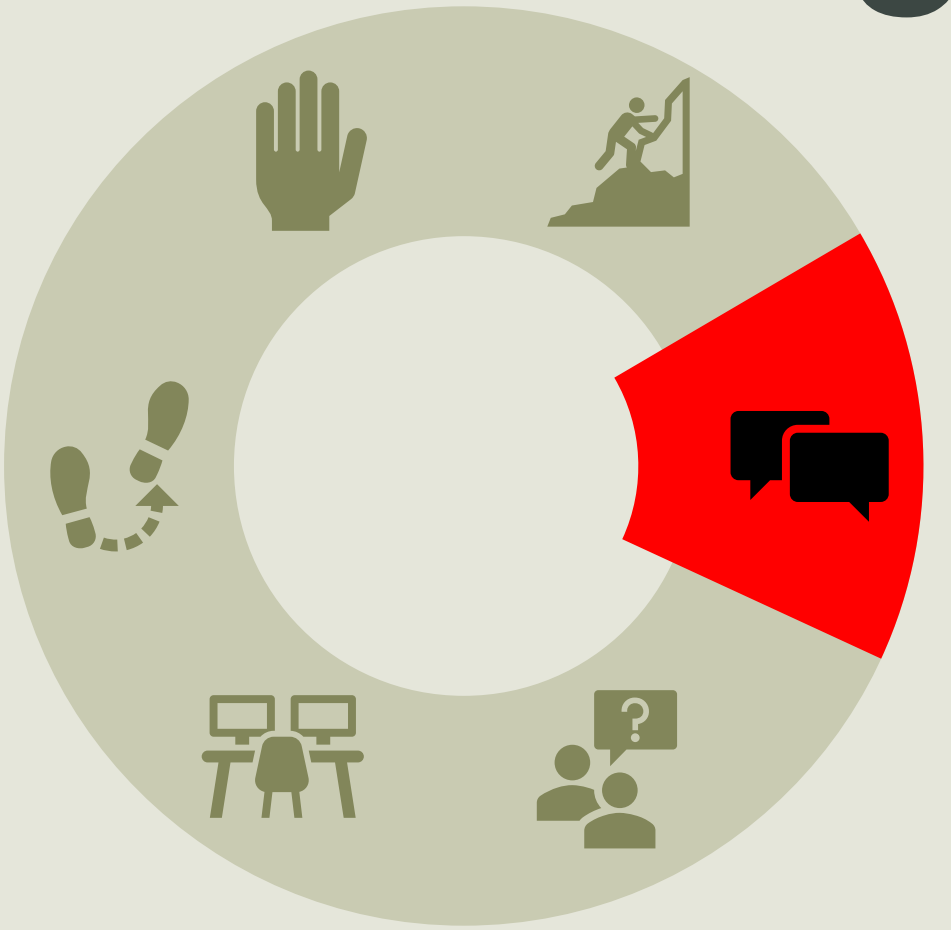
- Define and represent proportional relationships.

LEARNING GOALS

- I can define proportional relationships.


CHAMPS

CONVERSATION



0 – No Voice

1 – Whisper

2 – Table Talk

3 – Teacher Voice

4 – Outside Voice

CONVERSATION

0 – No Voice

1 – Whisper

2 – Table Talk

3 – Teacher Voice

4 – Outside Voice

HELP

Raise Hand

Ask 2 Before Me

Ask Partner

Clipboard

HELP

Raise Hand

Ask 2 Before Me

Ask Partner

Clipboard

ACTIVITY

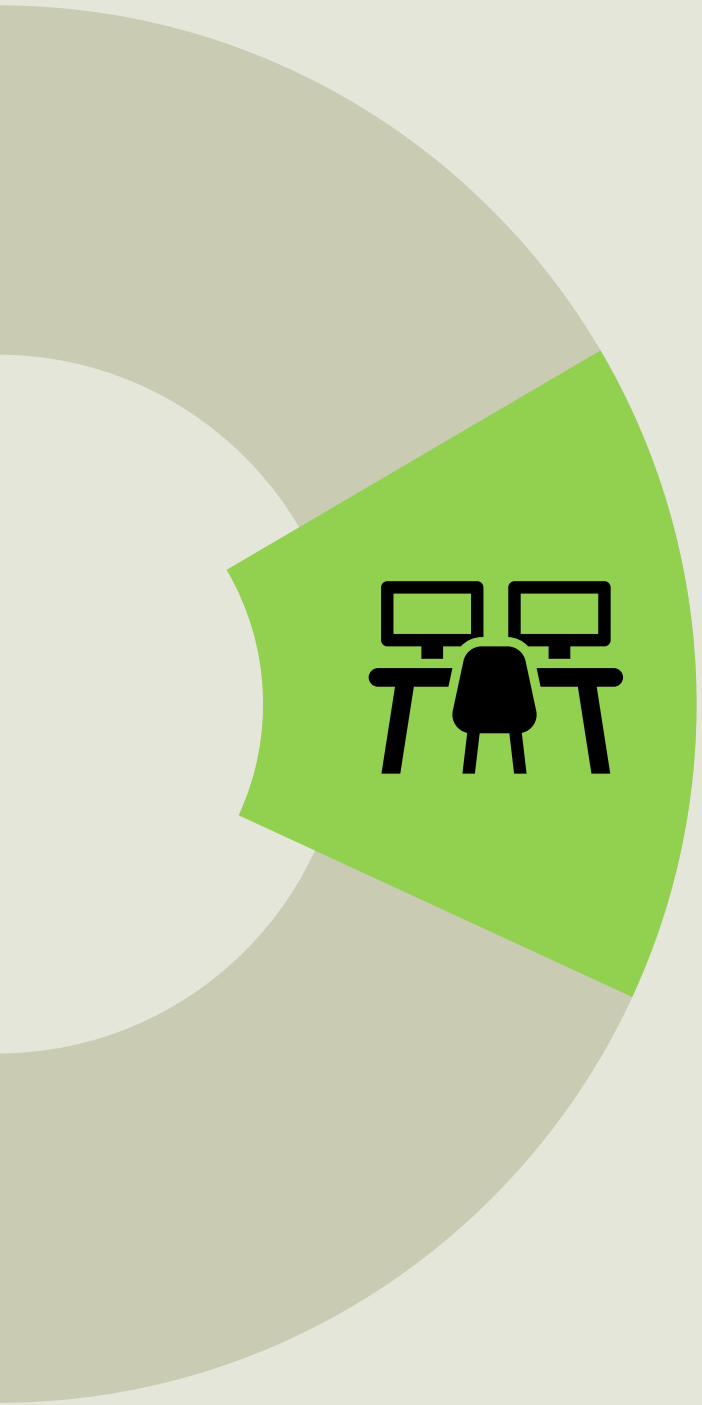
Independent Work

Buddy

Group Work

Whole Group

Stations



ACTIVITY

Independent Work

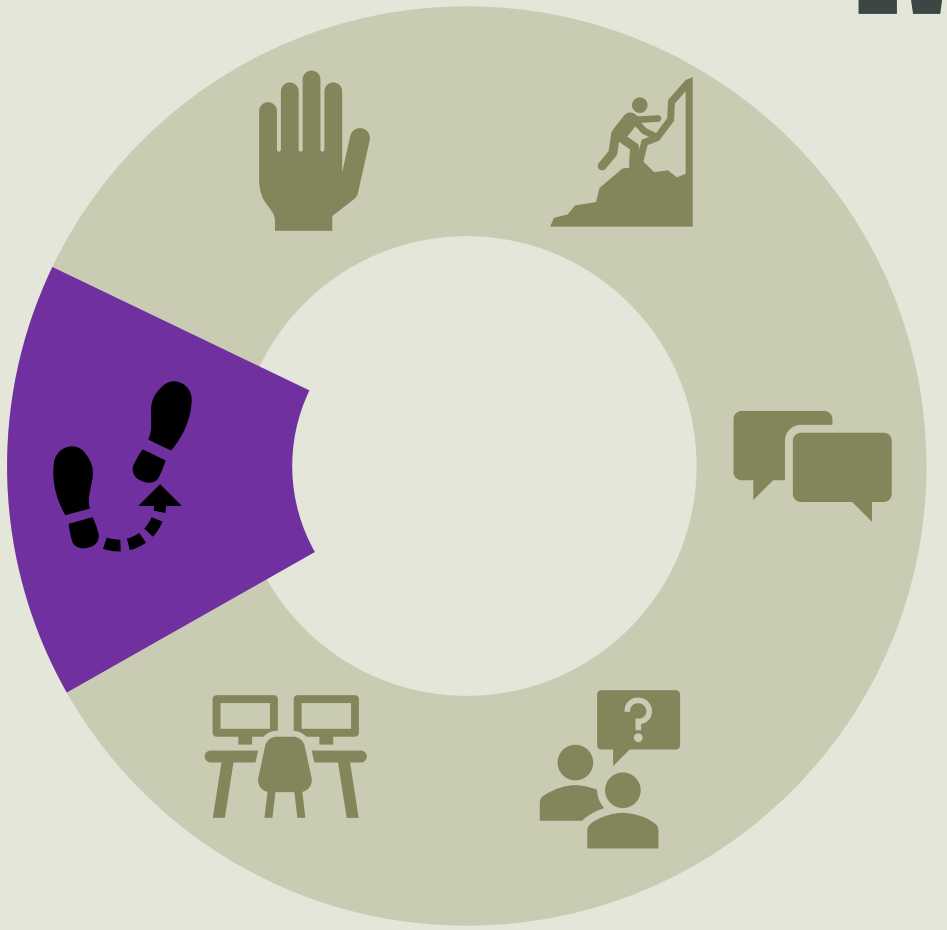
Buddy

Group Work

Whole Group

Stations

MOVEMENT



Stay Seated

Move with Permission

Move with a Partner

MOVEMENT

Stay Seated

Move with Permission

Move with a Partner

PARTICIPATION

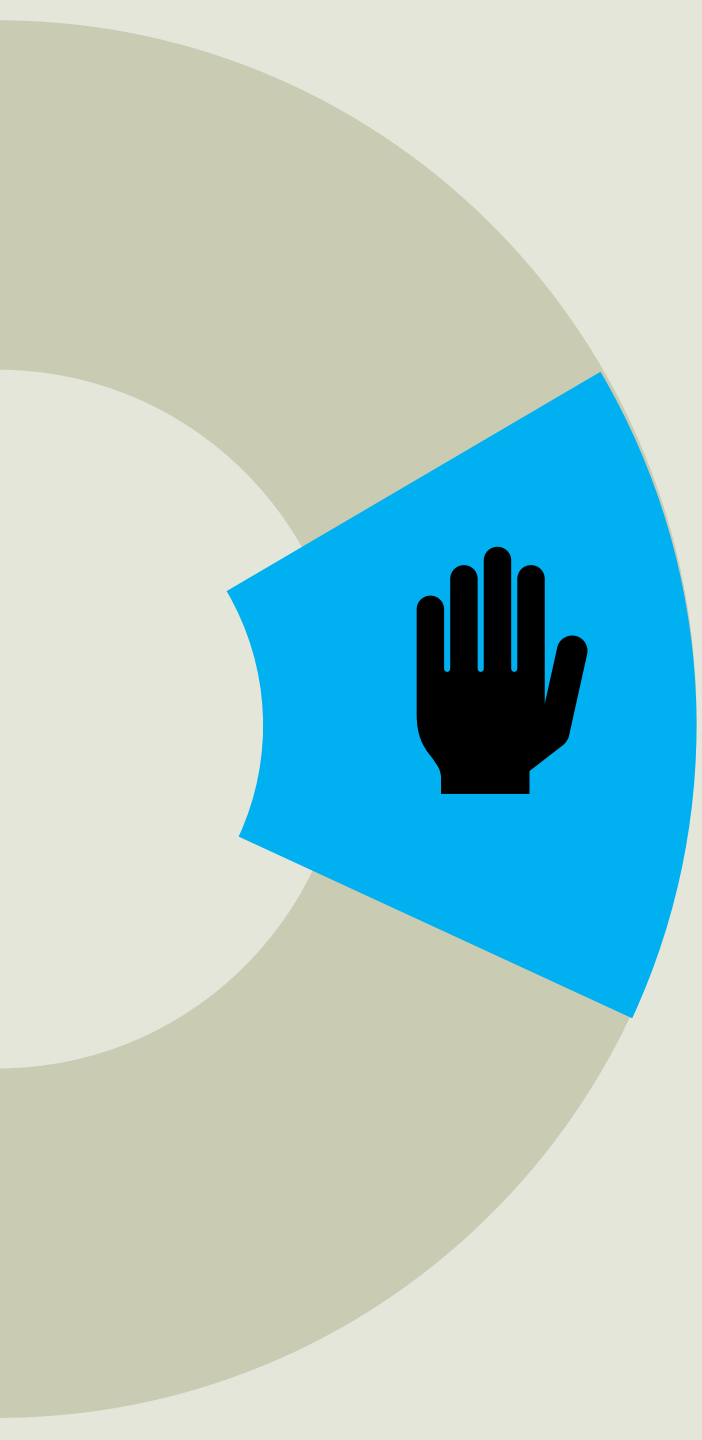
Listen

Full Cooperation

Work as A Team

Work as Directed

Work with Teacher's Help



PARTICIPATION

Listen

Full Cooperation

Work as A Team

Work as Directed

Work with Teacher's Help

SUCCESS

100% Lesson Participation

Follow CHAMPS Rules

Follow Expectations

SUCCESS

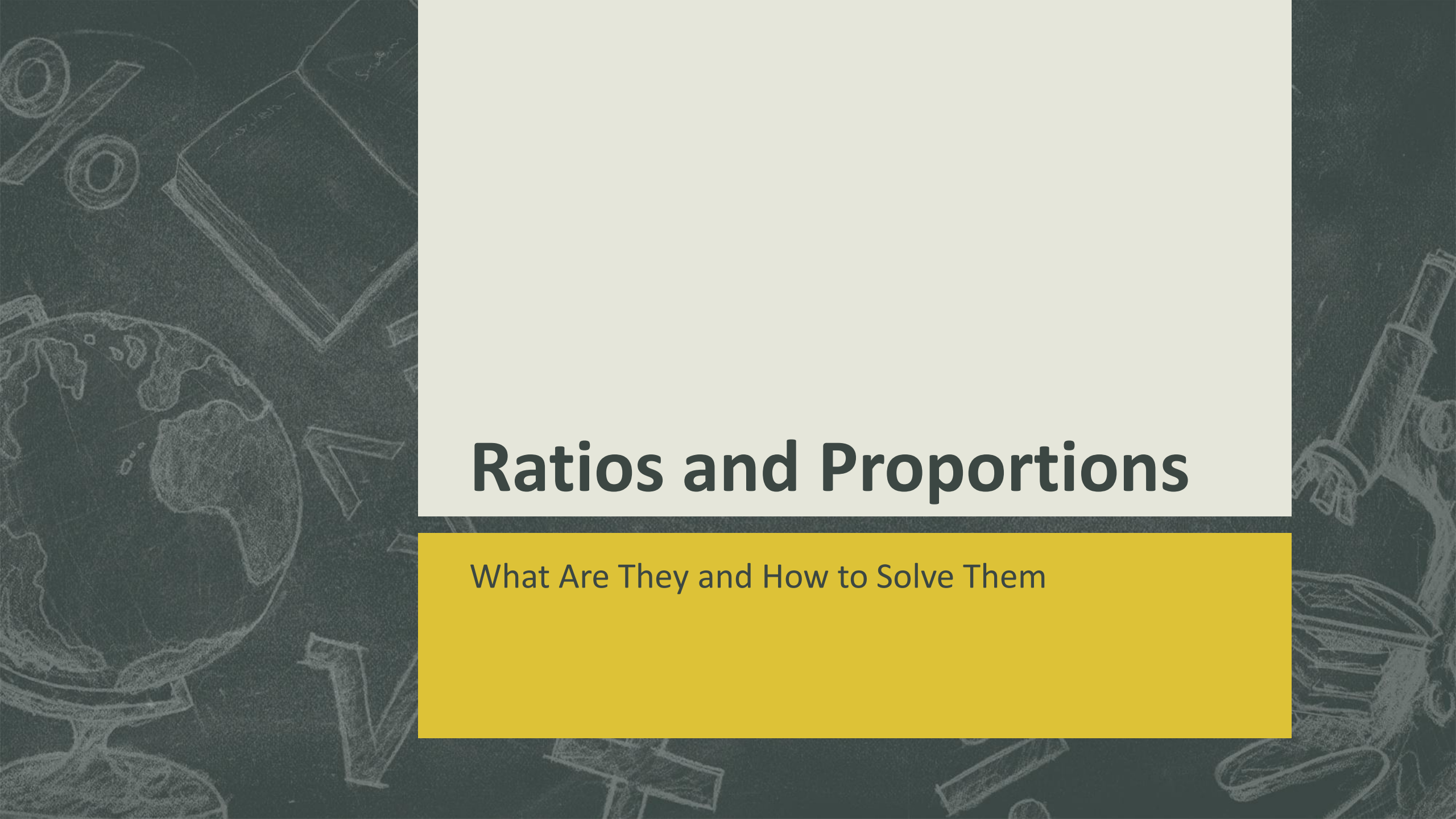
100% Lesson Participation

Follow CHAMPS Rules

Follow Expectations

CHAMPS RULES

C	H	A	M	P	S
1 – Whisper	Raise Hand	Independent Work	Stay Seated	Full Cooperation	Follow Expectations



Ratios and Proportions

What Are They and How to Solve Them

What are Ratios?

Definition

Ratios are mathematical expression that compare two or more quantities, indicating their relative sizes.

Comparative Nature

Ratios can compare similar items, such as types of students, or different categories, such as boys to girls.

Forms of Ratios

Ratios can be expressed in various formats, including colon notation (e.g. 10:6) and fraction form (e.g. 10/6).

Examples of Ratios

Given Examples

In a class of 16 girls, 10 red-haired girls and 6 purple-haired girls.

Possible Ratios

Ratios can be formed such as red-haired girls to purple-haired girls (10:6) or purple-haired girls to red-haired girls (6:10)

Proper & Improper Fractions

Ratios can be expressed as proper fractions (less than 1) or improper fractions (greater than 1).

What are Proportions?

Definition

A proportion is an equation that states two ratios are equivalent, indicating a balance between them.

Statement of Equality

Proportions are expressed the equality of two ratios, such as the ratio of hamsters to all class pets compared to the ratio of red-haired girls to all girls.

Checking Method

To verify proportions, one can simplify both ratios or apply cross-multiplication to confirm their equality.

How to Solve Ratios and Proportions

List Relevant Ratios

- Begin by identifying and listing all relevant ratios present in the problem to establish a clear framework for solving.

Cross-Multiplication

- When dealing with proportions, cross multiplication is a powerful technique to find unknown values.

Scaling Relationship

- When scaling ratios, it is essential to maintain the same relationships between quantities to ensure accuracy.

Word Problems with Ratios and Proportions

Real-Life Uses

- Ratios and proportions are widely applicable in various fields, including cooking, finance, and engineering.

Example Problem

- For instance, if one hamster requires 60g of chow, how much is needed for 5 hamsters?

Method to Solve

- Set up the ratio or proportion based on the problem, then solve for the unknown quantity.

$$1 : 60 = 5 : x$$

$$1 \cdot x = 60 \cdot 5$$

$$\boldsymbol{x = 300}$$

Example Ratios

- Consider maintaining a 2:3 ratio of pears to apples in a recipe or project.

Scaling Examples

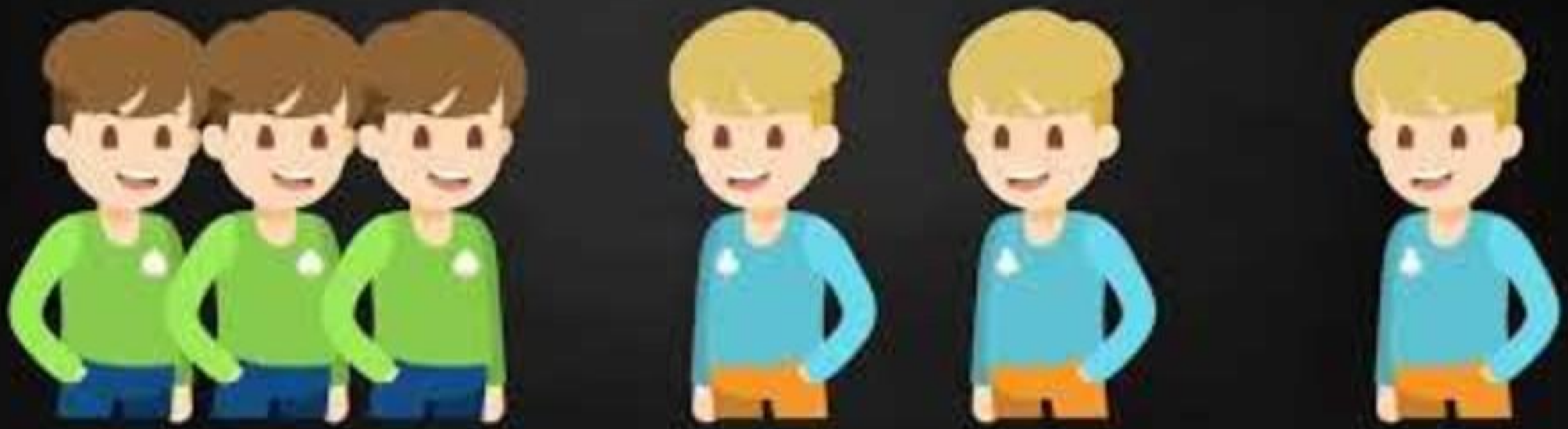
- If the basket size increases by 5 times, the ratio of pears to apples would scale to 10:15.

Classroom Scenarios

- Explore ratios in a classroom context, such as comparing the number of boys to girls, or chairs to students present.

RATIOS

compare values



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