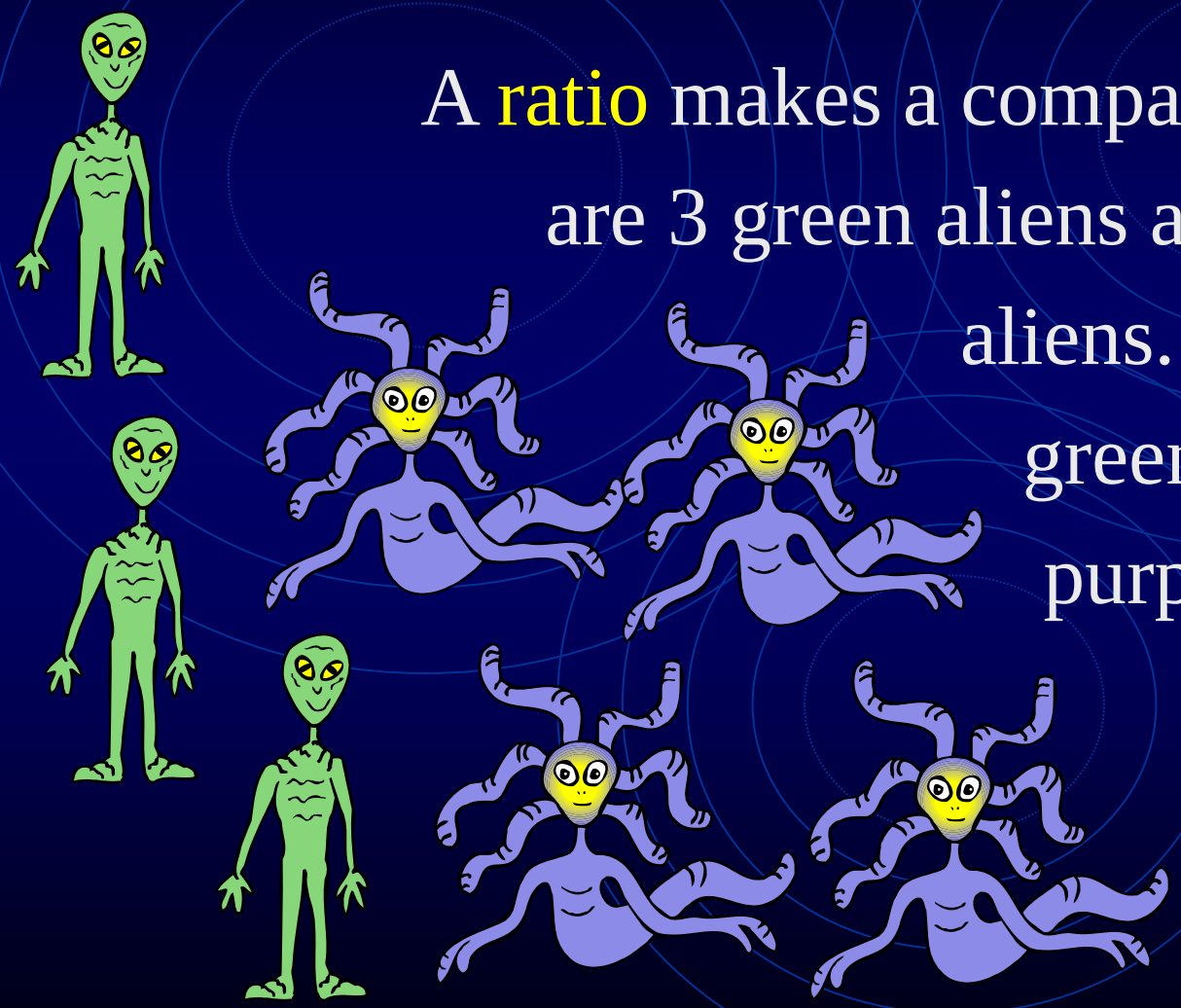
Ratios, Rates, and Unit Rates across the Universe

An introduction

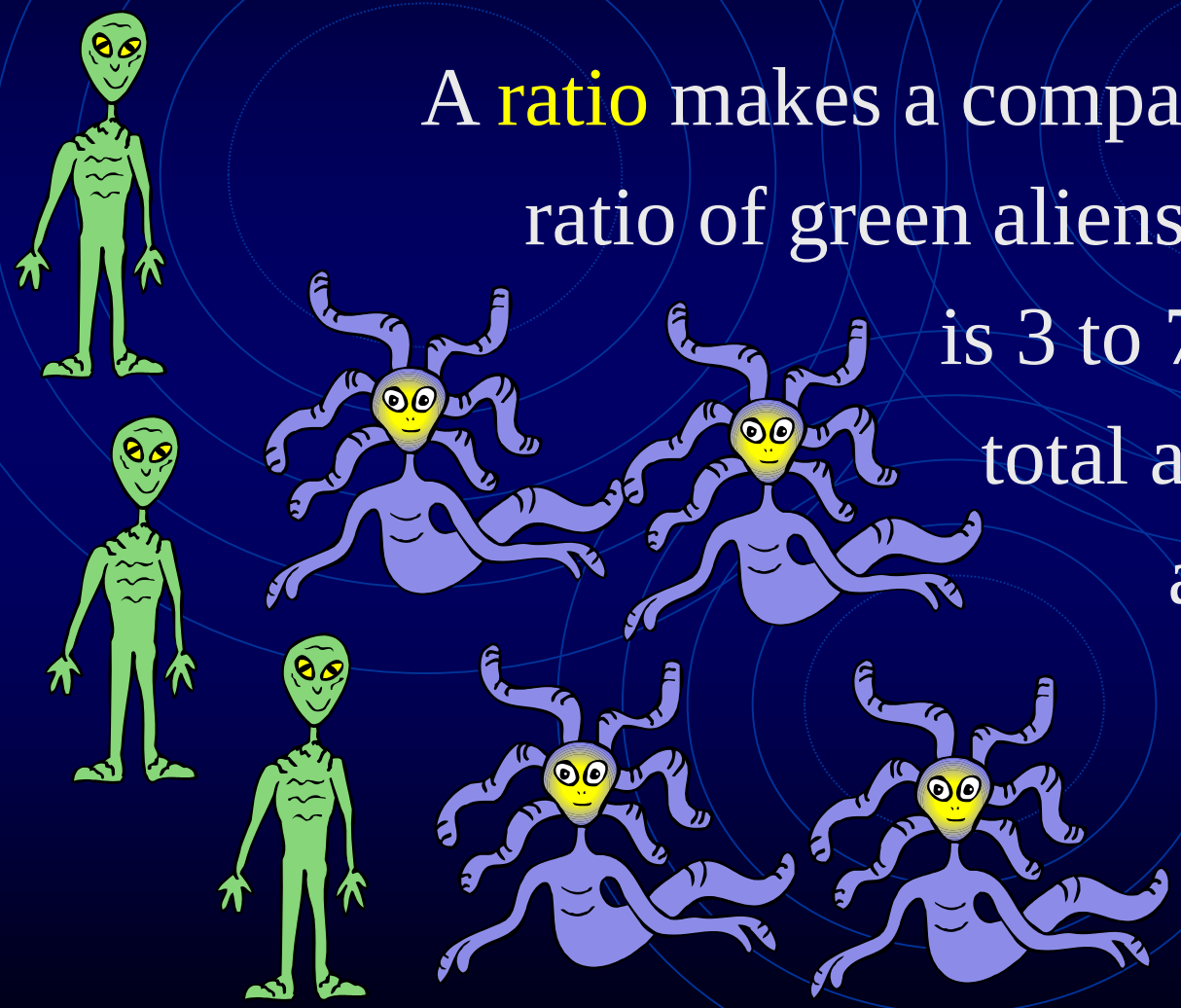
Mr. Underwood

RATIOS



A ratio makes a comparison. There are 3 green aliens and 4 purple aliens. The ratio of green aliens to purple aliens is 3 to 4.

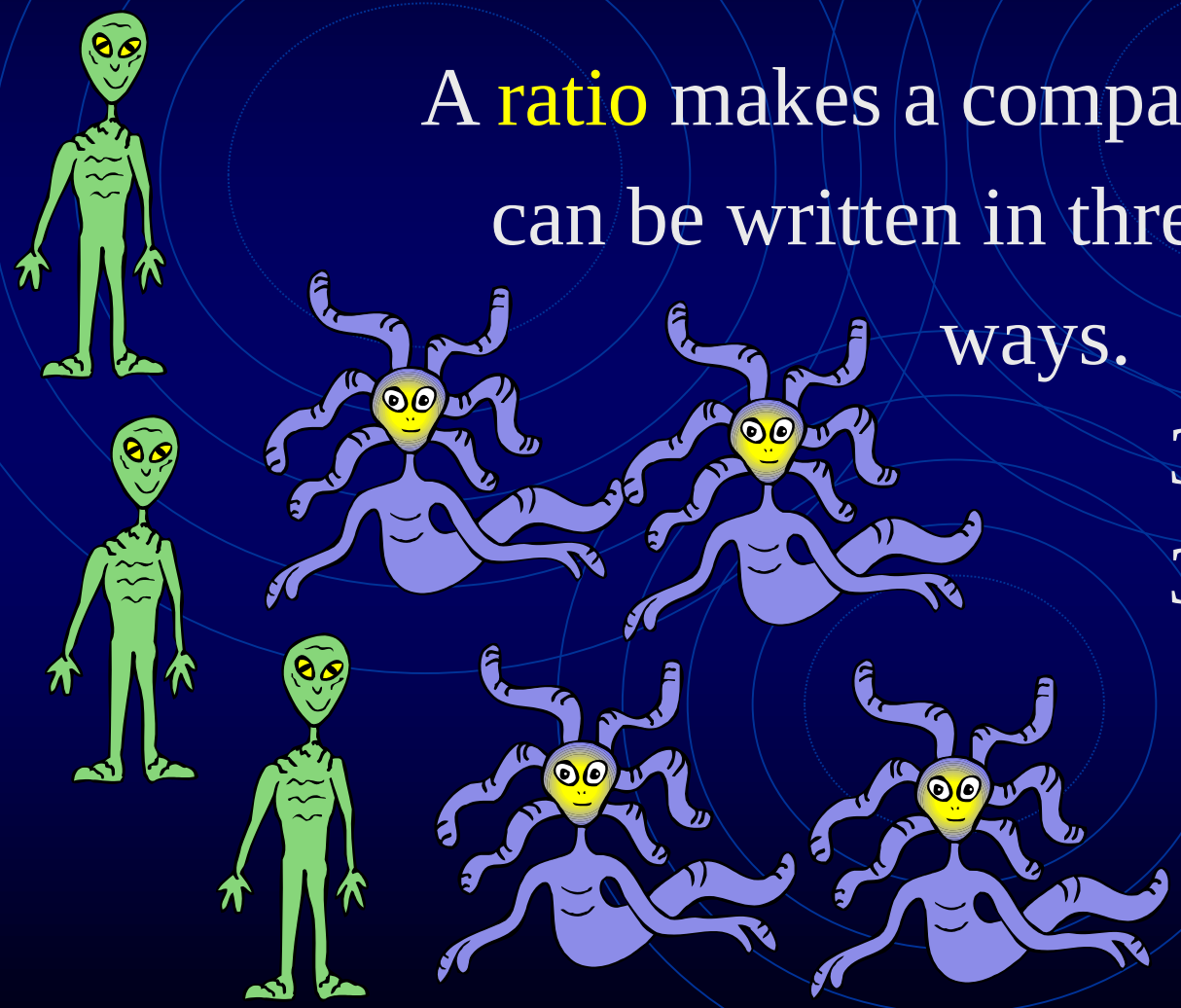
RATIOS



A ratio makes a comparison. The ratio of green aliens to total aliens is 3 to 7. The ratio of total aliens to purple aliens is 7 to 4.

RATIOS

A ratio makes a comparison. Ratios can be written in three different ways.



3 to 4

3:4

$$\frac{3}{4}$$

RATES

A rate is a ratio that compares quantities that are measured in different units.

This spaceship travels at a certain speed.
Speed is an example of a rate.
Speed can be measured in many different ways.
This spaceship can travel
100 miles in 5 seconds. 100 miles in 5 seconds is a rate.

RATES

A rate is a ratio that compares quantities that are measured in different units.

Rates are often written in fraction form.

100 miles in 5 seconds is a rate.

It can be written as…..

$$\frac{100}{5}$$

Miles

Seconds

RATES

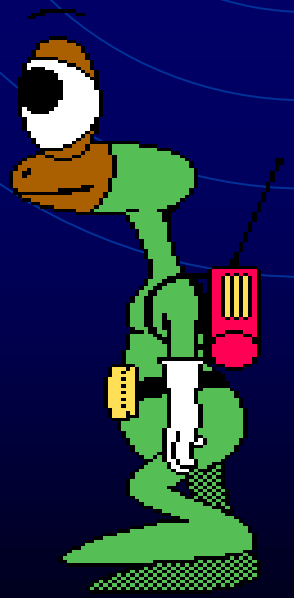
A rate is a ratio that compares quantities that are measured in different units.

One key word that often identifies a rate is PER.
Miles per gallon, Points per free throw,
Dollars per pizza, Sticks of gum per pack

What other examples of rates can your group think of?

UNIT RATES

Most of the time when we work with rates we use a unit rate. A unit rate compares a quantity to one unit of another quantity.



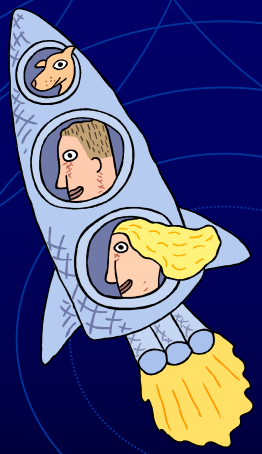
This alien can walk at a rate of 10 miles in 2 hours. His speed is a unit rate of 5 miles per 1 hour or simply 5 miles per hour.

$$\frac{10 \text{ Miles}}{2 \text{ Hours}} = \frac{5 \text{ Miles}}{1 \text{ Hour}}$$

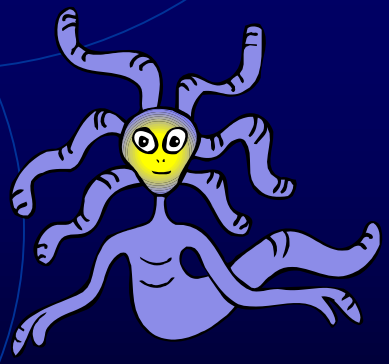
UNIT RATES

A unit rate compares a quantity to one unit of another quantity. These are all examples of unit rates.

2 eyes per alien
1 foot per leg



6 tentacles per head
1 tail per body



3 windows per spaceship
3 riders per spaceship
2 people riders per dog rider