Deepen understanding of fraction with multi-cultural examples
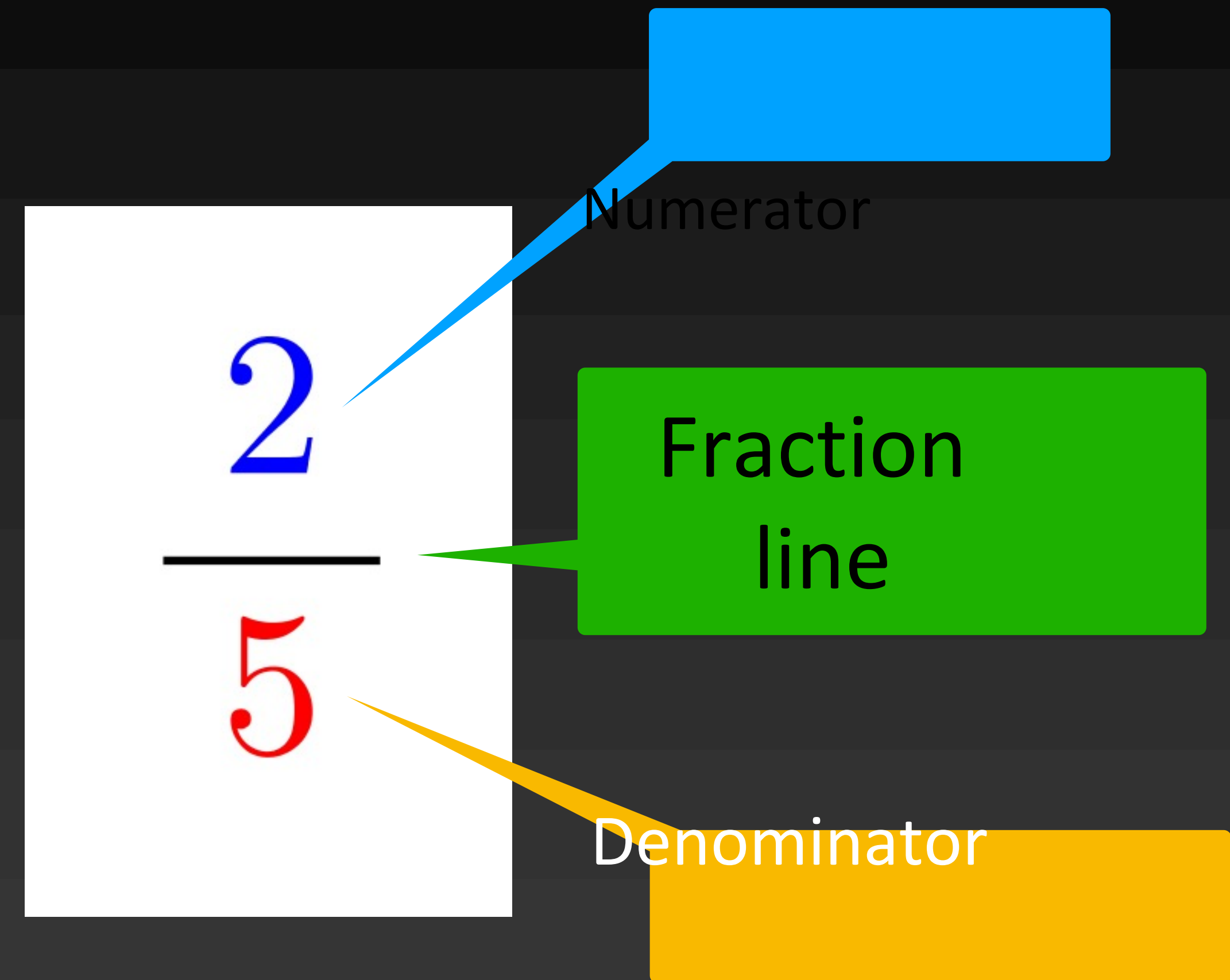
(1) Basic Fraction

(2) Multiplication & Division

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Building Concepts of Fraction

- The meaning of representation like $\frac{2}{5}$ is far from obvious

- The formal method looks odd to students

- Linking to objects that students are familiar will help building understanding

Numerator

Fraction line

Denominator

Graphics vs Daily Life Examples

- Traditional graphical representation is good and can better engage students and make the numbers more meaningful

- Yet, some students still feel confused

$$\frac{1}{4}$$

← one part

4 equal parts

Use of Daily Life Examples

* Linked with real things
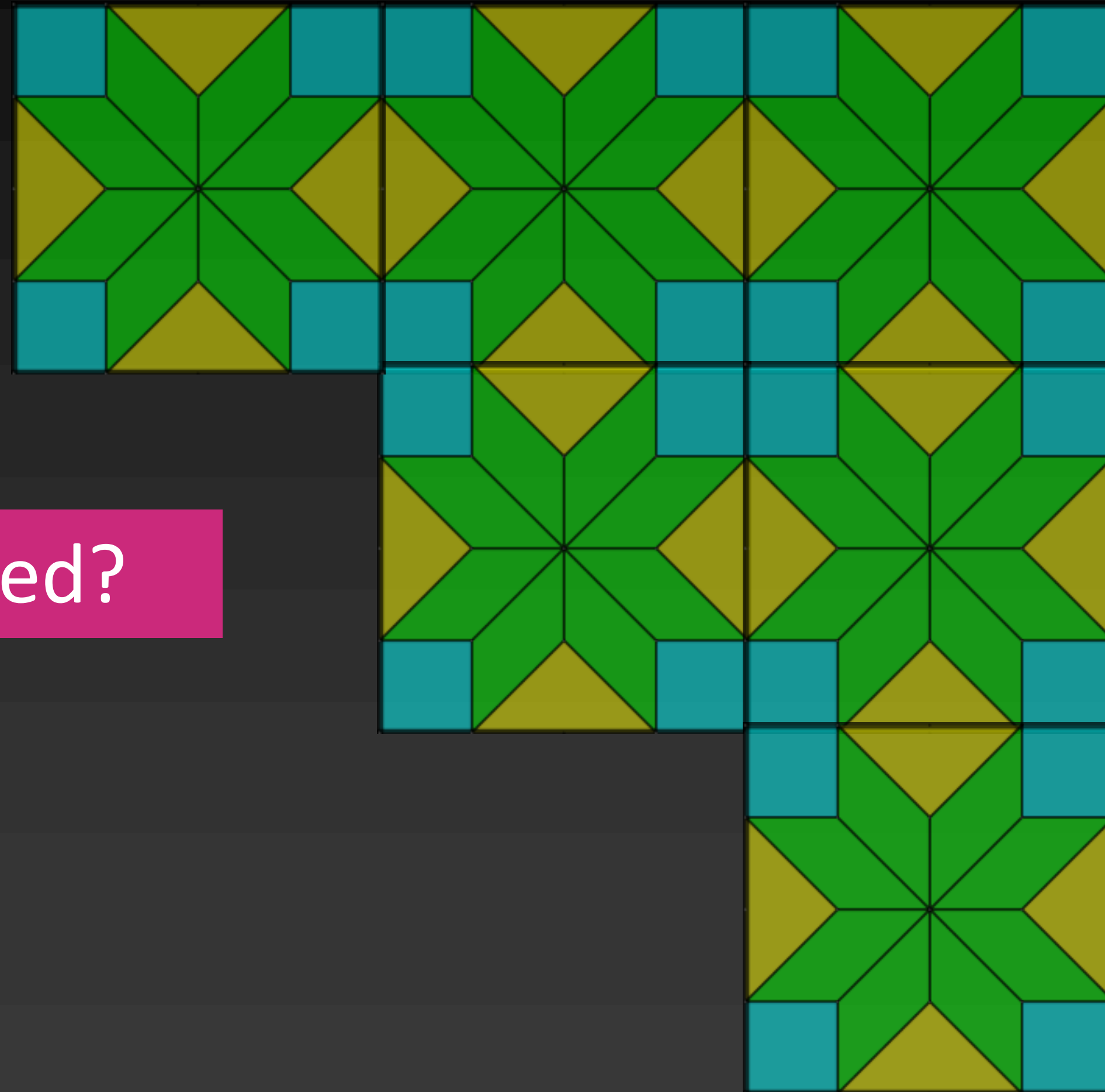
* Shared common experiences

Examples from specific cultures

- Share an Indian Masala Omelette

- Students from that culture have a sense of ownership

- Chance to invite some students to share

  - Even weaker students know their own culture better

- Curiosity of other students
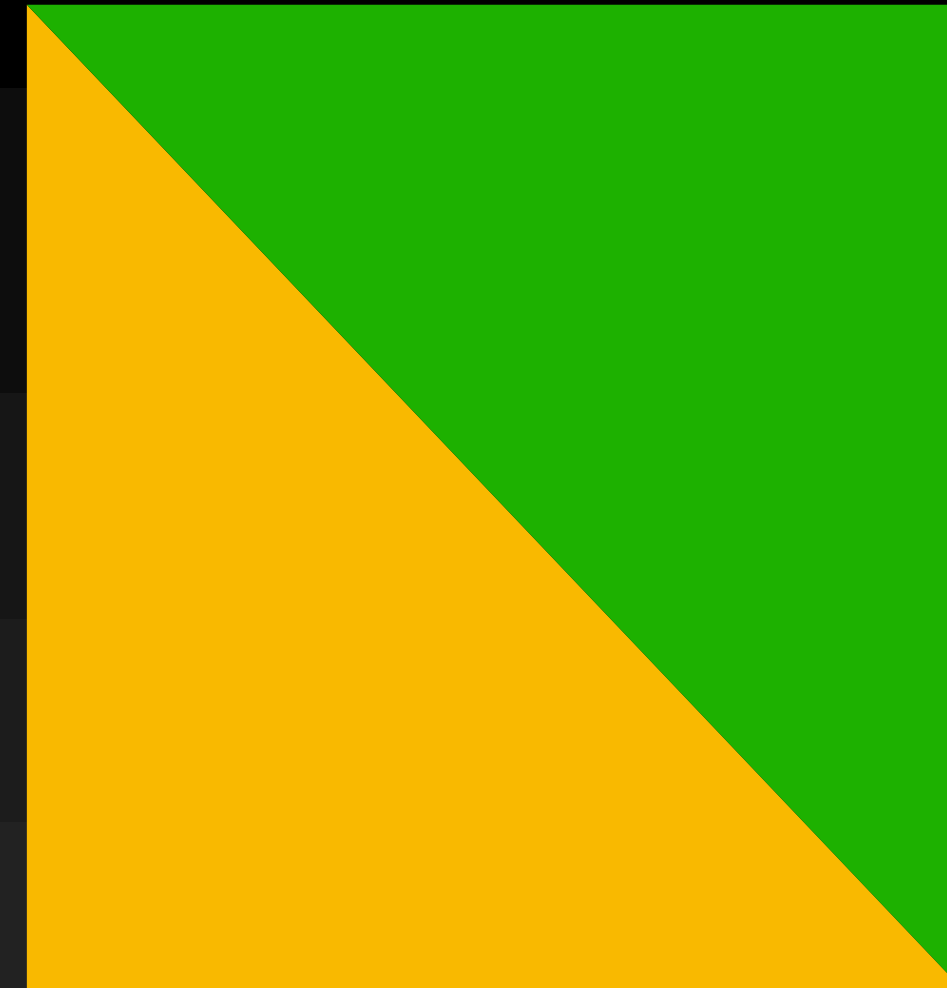
Multi-cultural Brick Pattern

What questions can be asked?

Cultural Examples

- Students from different cultures can share similar examples from their own culture

- Chance to apply what have been learnt and check for understanding

One Halves
in
different languages

Chinese: 二分之一 , 一半
English: one half,
Japanese: 半分, ハーフ (sounds like half)
Korean: 반 (sounds like ban)

What is the order
of reading the numbers?

Breakfast around the world

- Definition (How to represent a fraction)

- Breakfast around the world (sharing of food and concept of fraction)
  — Fraction of a whole/fraction of a group

Momos

Puri

Comparing fractions

- Using different scenarios to motivate students to think

  - Which will you prefer? $\frac{1}{2}$ or $\frac{1}{3}$ of a piece of (bread/potato/…)?

  - Mother gives one third from a whole carrot cake to Eve and another one third to Ben. Both of them want more. Mother thinks for a while and then divides the cake into 6 equal pieces and give 2 pieces to each of them. Both of them feel very happy.

Fraction of a group of objects

* 8 students in a class of 18 students know how to play baseball/cricket.
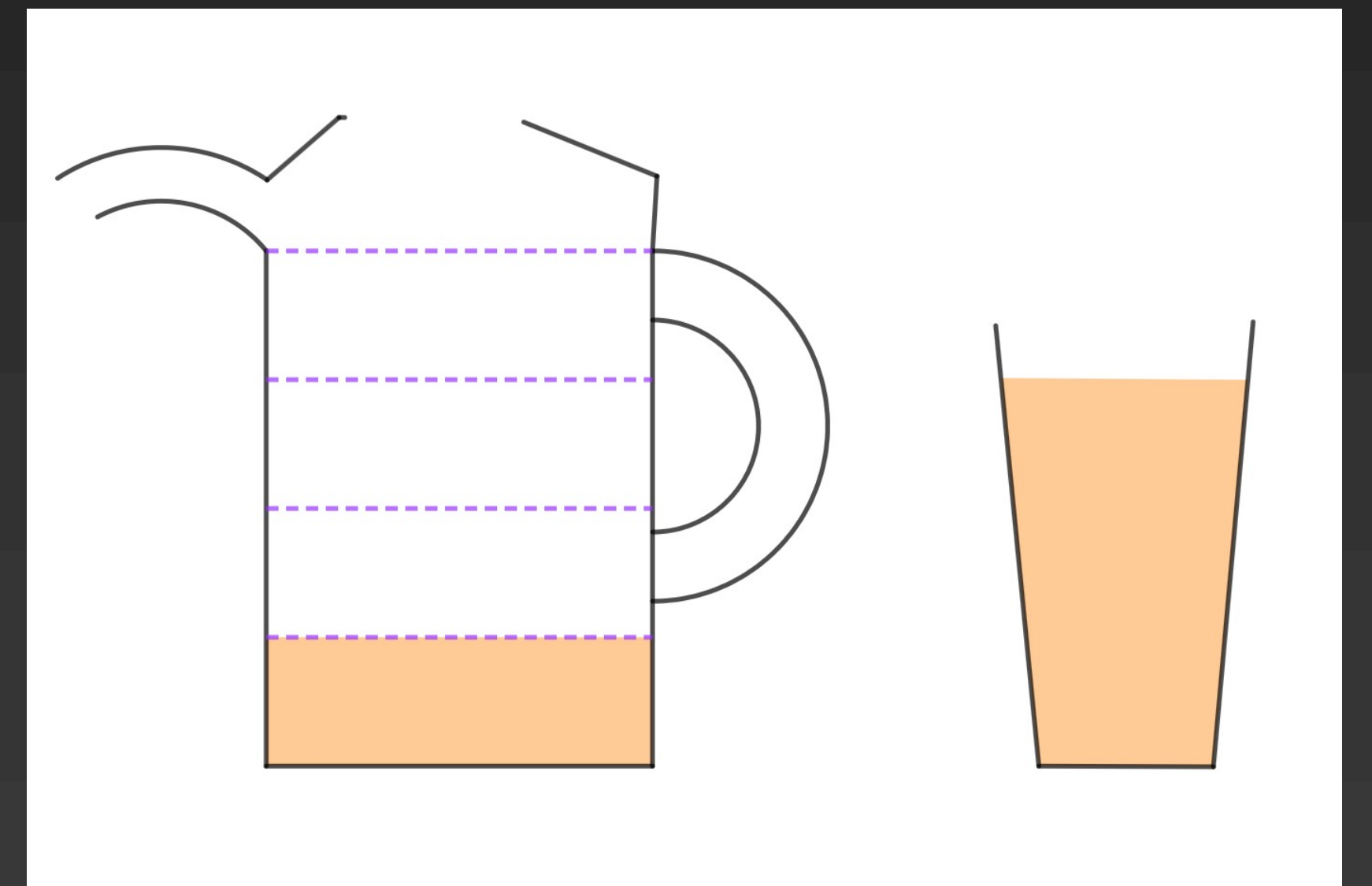* What portion/fraction of students know how to play baseball/cricket?

Fraction Multiplication

A tall size masala tea cup can fill up one fourth of a tea pot.
A short size masala tea contains two thirds of a tall size one.
How many tea pots are filled by 5 tall size cups and 1 short size cup of masala tea?

Fraction Division

- Each glass of Lassi (yogurt base Indian drink) needs $\frac{1}{5}$ bottle of yogurt.

- How many glasses of lassi can be made with $1\frac{1}{2}$ bottles of yogurt?

$$1\frac{1}{2} \div \frac{1}{5} = 1\frac{1}{2} \times \frac{5}{1} = \frac{3}{2} \times \frac{5}{1} = \frac{15}{2} = 7\frac{1}{2}$$

What does the answer mean?