

# DMT INSTITUTE

Developing Mathematical Thinking Institute (DMTI)



Professional  
Development



Curricular  
Resources



Assessment

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# About the DMTI Targeted Activities

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These DMTI Targeted Activities modules are designed to be played or completed with a partner or in small groups. These supplement the Intermediate Math Assessment and DMTI curricular materials.

The activities are intended for teachers or caregivers to play with children to build necessary math skills and math language. Each activity can be played for 10 to 20 minutes. Each additional activity in the module advances in difficulty.

# **IMA – Grade 3 - 6**

## **Fraction Concepts –**

### **Partitioning Bar Models A**

# Fraction Concepts

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## What's involved:

- Seeing the relationship to one with various fractional units
- Iterating and partitioning units of one and fractional amounts
- Understanding similarities and differences with equivalent amounts
- Comparing fractions
- Understanding the relationship between quantities

## Why it matters:

- Reinforces measurement concepts
- Helps students make sense of multiplicative situations which supports their ability to reason proportionally
- Builds foundational concepts for algebra and functions
- Connects to real-life situations from cooking to building to engineering

# Fractions: Partitioning Bar Models

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## Materials

- Journal or Paper
- Blackline [Printout]

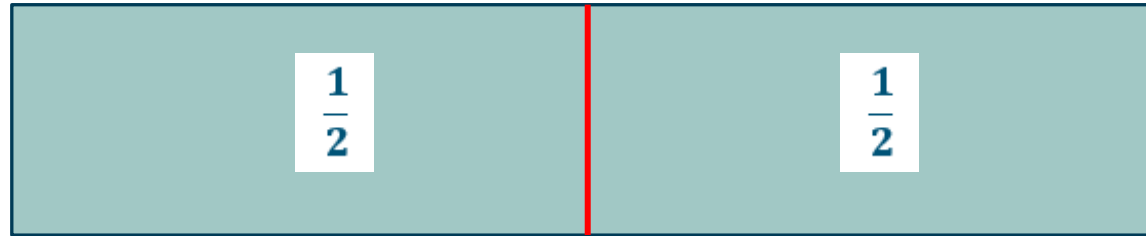
# Fractions: Partitioning Bar Models

## Activity 1

Splitting something into equal parts is called *partitioning*.

Draw a line that will partition this bar model into **2 equal parts**.

The number *one half* is written this way.



The number we use to describe each of the two parts is said as *one half*.

- How did you know that would partition the bar model into 2 equal parts?  
Use this sentence frame: *I knew the line would partition the model into 2 parts because \_\_\_\_\_.*
- Where would a line go that would decompose the bar model into 2 parts that are **not** equal?

# Fractions: Partitioning Bar Models

## Activity 1

Now let's partition a new bar model into 4 equal parts.

Use the way you partitioned halves to make *fourths*.

The number *one-fourth* is written this way.



The number we use to describe each of the two parts is said as *one-fourth*. Call them *one-fourth units*.

- Which is larger,  $\frac{1}{2}$  or  $\frac{1}{4}$ ?
- Why do you think  $\frac{1}{2}$  is larger than  $\frac{1}{4}$ ?

Use this sentence frame: *When the whole bar model is partitioned into halves, they are larger than fourths because*\_\_\_\_\_.

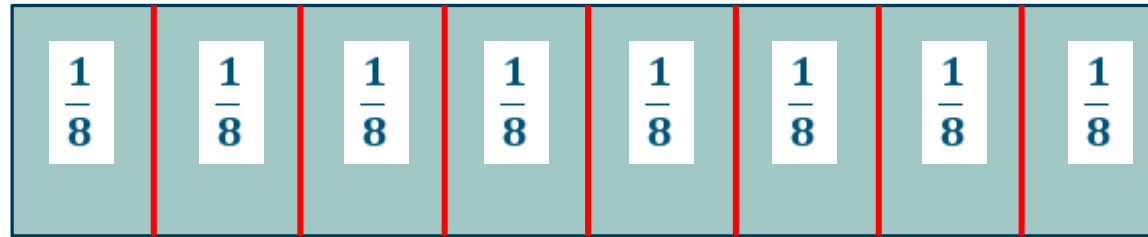
# Fractions: Partitioning Bar Models

## Activity 1

Now let's partition a new bar model into 8 equal parts.

Use the way you partitioned halves to make *fourths*.

The number *one-eighth* is written this way.



The number we use to describe each of the two parts is said as *one-eighth* or *one-eighth units*.

- Which is larger,  $\frac{1}{4}$  or  $\frac{1}{8}$ ?
- Why do you think  $\frac{1}{4}$  is larger than  $\frac{1}{8}$ ?

Use this sentence frame: *When the whole bar model is partitioned into fourths, they are larger than eighths because\_\_\_\_\_.*



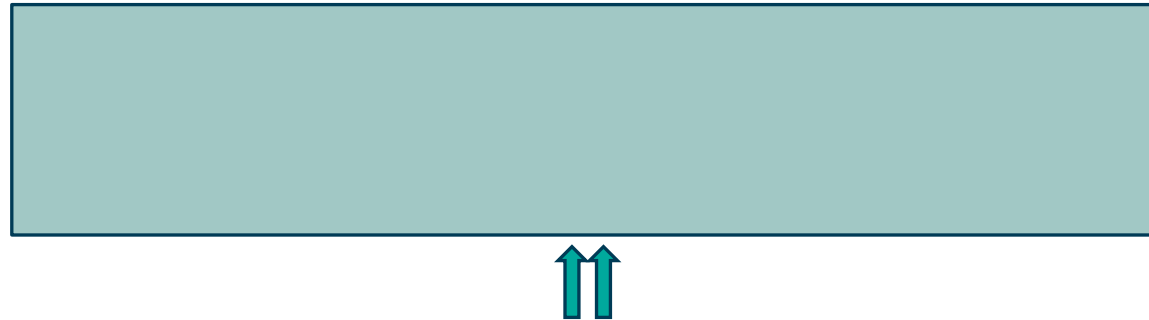
# Fractions: Partitioning Bar Models

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## Activity 2

A more difficult way to partition is to make **3 equal parts**.

How do you think you can partition into *thirds*?



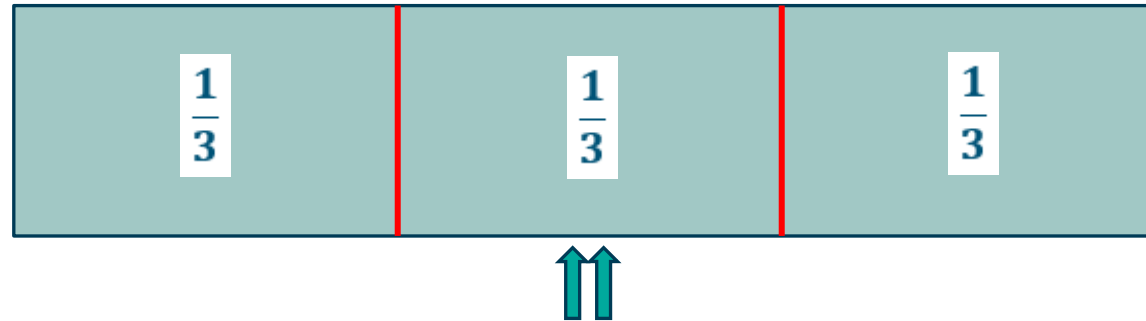
To partition into thirds, first mark half with two fingers. Spread your fingers out until the space on the outside of your fingers is the same as the space in between your fingers. Partition into thirds with two lines where your fingers are.

# Fractions: Partitioning Bar Models

## Activity 2

A more difficult way to partition is to make **3 equal parts**.

How do you think you can partition into *thirds*?



There are now three *one-third units*.

To partition into thirds, first mark half with two fingers. Spread your fingers out until the space on the outside of your fingers is the same as the space in between your fingers. Partition into thirds with two lines where your fingers are.

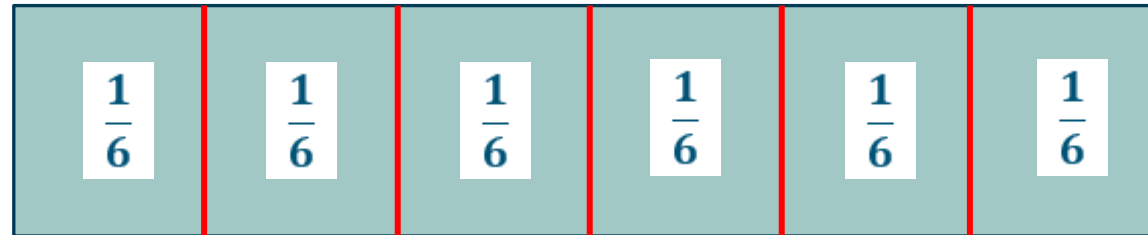
# Fractions: Partitioning Bar Models

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## Activity 2

Use what you know about thirds to partition into **6 equal parts**.

Think about how you partitioned halves into fourths to partition thirds into *sixths*.



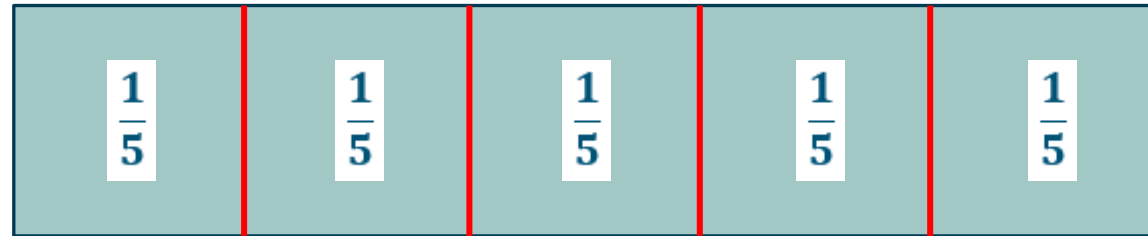
There are now six *one-sixth units*.

# Fractions: Partitioning Bar Models

## Activity 2

One of the most difficult partitions to make is to create **5 equal parts**.

How can you partition into *fifths*?



There are now five *one-fifth units*.

To partition into fifths, first think about where one-fourth would. Then, move a little closer (left) to the beginning of the model and partition. Just like thirds, there will be no partition at the half part of the model when you partition into fifths.

# Fractions: Partitioning Bar Models

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## Activity 3

Now we will practice partitioning strategies.

You will be shown a bar model and be asked to partition into a number of unit fractions.

You will have 5-10 seconds to partition into the given unit fraction.

If you are incorrect, partition again to correct the model and then click to move forward.

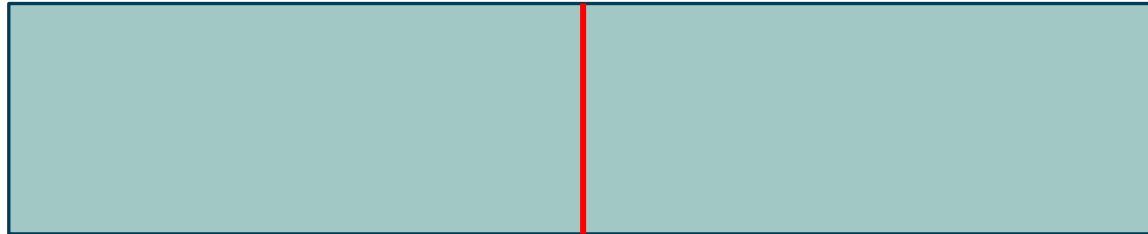
Go back to [Activity 1](#), [2](#) or [3](#) if you need to practice some partitioning strategies.

# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{2}$  units.

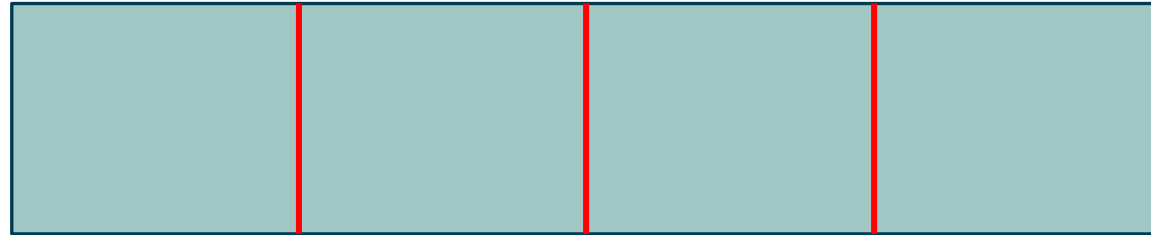


# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{4}$  units.

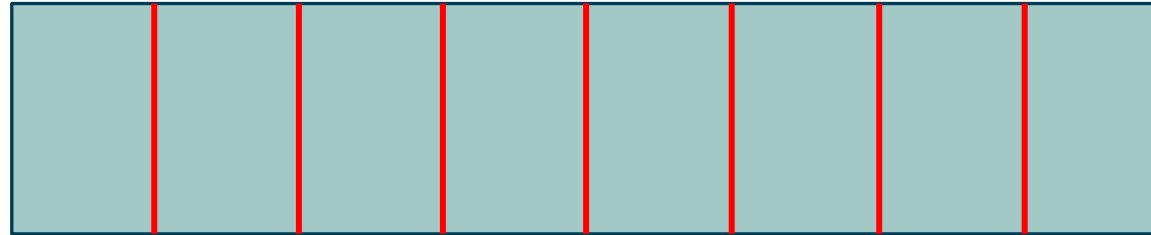


# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{8}$  units.





# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{3}$  units.

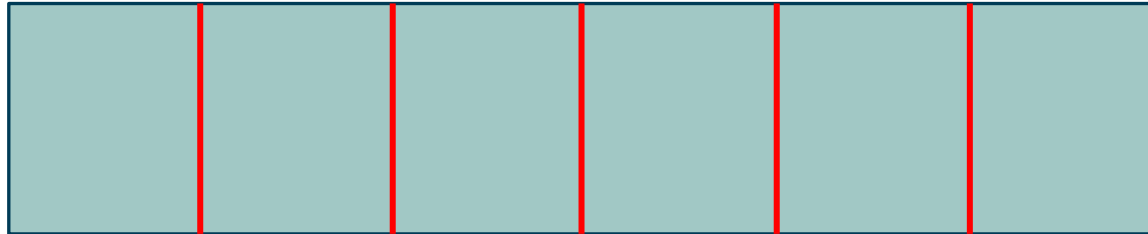


# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{6}$  units.

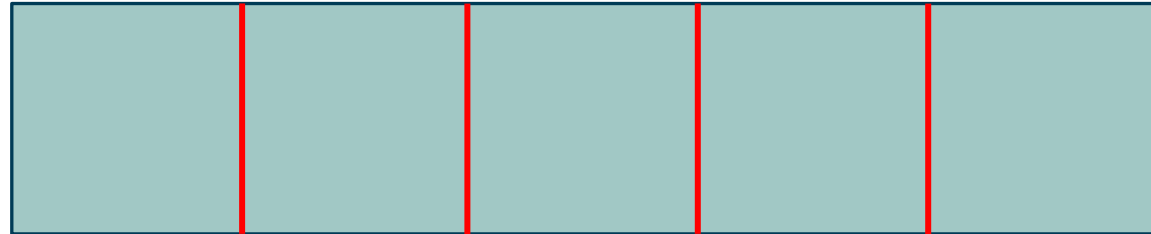


# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{5}$  units.

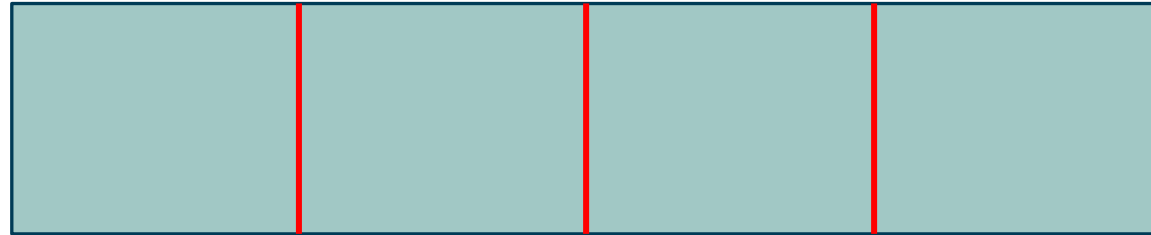


# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{4}$  units.



# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{3}$  units.

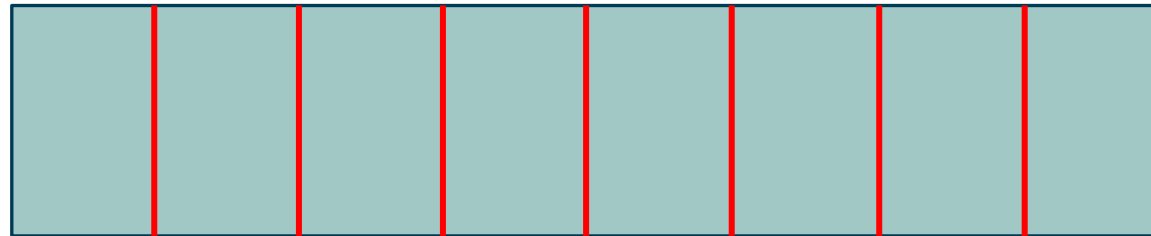


# Fractions: Partitioning Bar Models

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## Activity 3

Partition into  $\frac{1}{8}$  units.

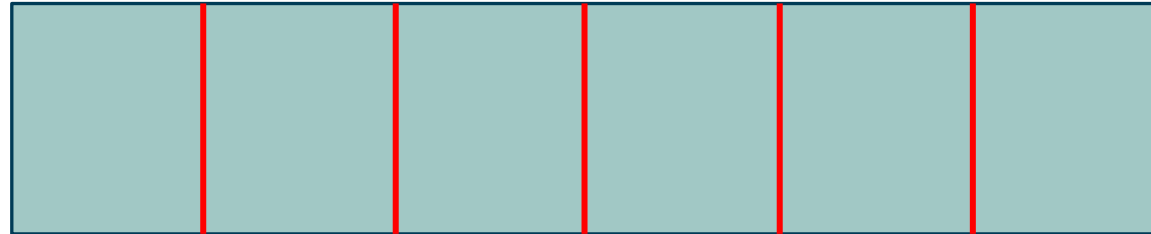


# Fractions: Partitioning Bar Models

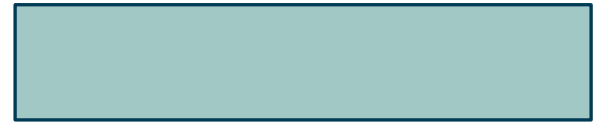
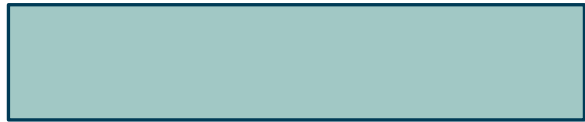
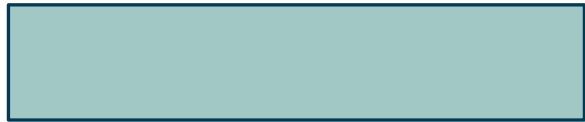
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## Activity 3

Partition into  $\frac{1}{6}$  units.



# Bar Model Blackline Master







“The Developing Mathematical Thinking Institute (DMTI) is dedicated to enhancing students’ learning of mathematics by supporting educators in the implementation of research-based instructional strategies through high-quality professional development, curricular resources and assessments.”

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