

Quarters of Shapes and Lengths.

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Differentiate and Assess

Not every student will be ready to investigate this concept at this Level and so we will need to differentiate to ensure every student is learning at their leading edge. Select the Differentiate button on this screen.

Integrate

Every mathematical concept is integrally related to other mathematical concepts. Teaching and learning related concepts simultaneously develops deep relational understanding. Select the Integrate button on this screen.

Intervene

Some students may not yet be ready to investigate this concept at any Level, and so we will need to provide some intervention. Select the Intervention button on this screen.

QUARTERS OF SHAPES AND LENGTHS.

EXPLICIT TEACHING PLAN OVERVIEW PAGE

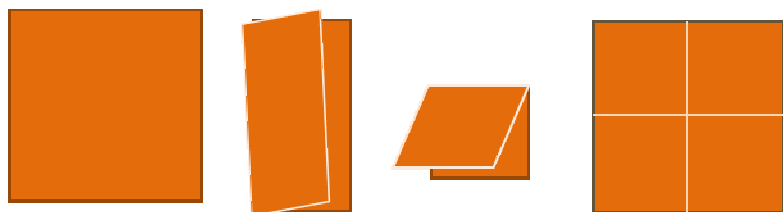
THIS PAGE IS A SUMMARY OF THE EXPLICIT TEACHING PLAN, INCLUDING STRATEGIC QUESTIONS, AND DESCRIBING THE SEQUENCE WHICH WILL OCCUR OVER MULTIPLE LESSONS.

RESOURCES: PAPER SHAPES AND LENGTHS, PENCIL, PAPER

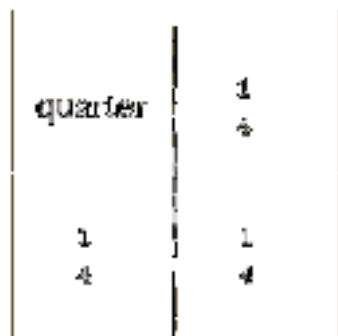
WHAT COULD WE DO?

Children:

- quarter shapes, for example,



- record quarters, for example,



WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?


Children

- ask one another questions about quartering shapes, for example:
 - ▶ How could we divide this shape in quarters?
 - ▶ Why is this fraction called a quarter?
 - ▶ What is this a quarter of?
 - ▶ What did we do to our half to make quarters?
 - ▶ What fraction of a half is a quarter?
 - ▶ What does this symbol say?
 - ▶ Does this symbol say quarter?

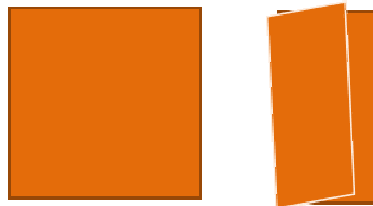
QUARTERS OF SHAPES AND LENGTHS

EXPLICIT TEACHING PLAN

FULL EXPLICIT TEACHING PLAN, EMBEDDING DEEP RELATIONAL UNDERSTANDING, METALANGUAGE, AND QUESTIONS THAT MAY BE USED OVER MULTIPLE LESSONS.

WHAT COULD WE DO?	WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?
<p>Children think about, talk and listen to a friend about, then have the opportunity to share what they already know.</p> <p>Record, for example, a fraction is a part.</p> <p>Record, for example, quarter</p> <p>Distribute a square to each child, for example,</p> 	<ul style="list-style-type: none">▶ Today brings an investigation about fractions.▶ What do you know about fractions?▶ Talk about fractions with a friend.▶ Is anyone ready to share what they are thinking about fractions? ▶ If we have a fraction of something, do we have the whole thing or do we just have a part?▶ In Mathematics, we love to measure things!▶ So when we measure the part, we call it a fraction!▶ We've investigated halves.▶ Today we are going to investigate another fraction.▶ What other fractions have you heard of?▶ Have you heard of a quarter?▶ Today we're going to investigate quarters. ▶ What shape is this?▶ Is this a square?▶ How do you know this is a square?▶ Does it have 4 sides?

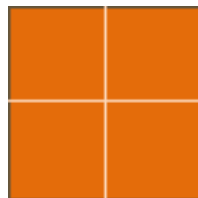
Divide the square in half by folding opposite edges to together, for example,



Divide the half in half by folding opposite edges to together, for example,



Open the square, for example,



- ▶ Do all of the sides look like they are the same length?
- ▶ Does it have 4 vertices?
- ▶ Do all of the vertices look the same size?

- ▶ If we divide this square into 4 equal parts, what fraction will each part be?
- ▶ Will each part be a quarter?
- ▶ If we divide this square in quarters, how many equal parts will we have?
- ▶ Will we have 4 equal parts?
- ▶ How could we divide this square into 4 equal parts?
- ▶ How could we divide this square in quarters?
- ▶ What fraction could we divide it into first?
- ▶ Could we start by dividing it in half?
- ▶ Let's try!

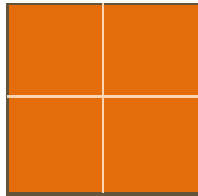
- ▶ What could we do to our half to make quarters?
- ▶ Could we divide our half in half? Let's try!

- ▶ Let's open our square to see what fraction we have created
- ▶ How many parts? Are there 4 parts?
- ▶ Are the parts equal?

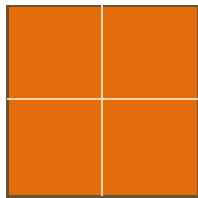
Children superimpose the parts and look for gaps and overlaps, for example,



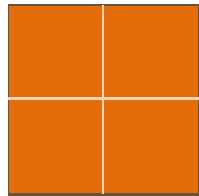
Point to one quarter of the square, for example,



Point to another quarter of the square, for example,

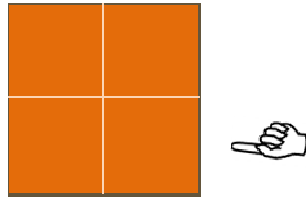


Point to another quarter of the square, for example,



- ▶ How do you know the parts are equal?
- ▶ Could we superimpose the parts, and look for gaps and overlaps?
- ▶ If we have 4 equal parts, what fraction do we have?
- ▶ Do we have quarters?
- ▶ What fraction of the square is this?
- ▶ Is this a quarter?
- ▶ Why is it a quarter?
- ▶ Is it a quarter as big as the square?
- ▶ What fraction of the square is this?
- ▶ Is this a quarter?
- ▶ Why is it a quarter?
- ▶ Is it a quarter as big as the square?
- ▶ What fraction of the square is this?
- ▶ Is this a quarter?
- ▶ Why is it a quarter?
- ▶ Is it a quarter as big as the square?

Point to another quarter of the square, for example,



Record quarter in one quarter of the square, for example,



Record, for example, half $\frac{1}{2}$

Record, for example, quarter $\frac{1}{4}$

Record the symbol for a quarter in the other 3 quarters of the square, for example,



- ▶ What fraction of the square is this?
- ▶ Is this a quarter?
- ▶ Why is it a quarter?
- ▶ Is it a quarter as big as the square?

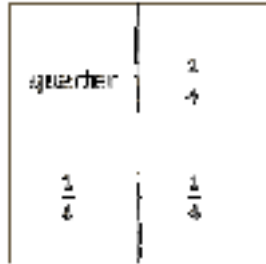
- ▶ How could we record that each part is a quarter?
- ▶ Could we record the word quarter?
- ▶ Let's record the word quarter in one quarter of the square.

- ▶ How else could we record a quarter?
- ▶ We investigated recording half using a word, and using a symbol.
- ▶ We found that if we use a symbol, everyone around the world can read it, no matter what language they speak.
- ▶ We found that the symbol for a half looked like this.

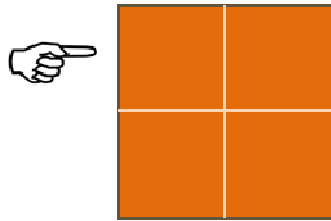
- ▶ We have a symbol that says quarter.
- ▶ The symbol for a quarter looks like this.
- ▶ What does this symbol say?
- ▶ Does this symbol say quarter?

- ▶ Let's record the symbol for a quarter in the other 3 quarters of the square.

Record a square, divide it into quarters, record the word and the symbol for a quarter in the quarters of the square, for example,



Point to one quarter of the square, for example,



Record, for example, 'a quarter is a quarter as big as 1'

Display folding the square in half, and then in half again, to make quarters, for example,



Record, for example, 'a quarter is half of a half'

- ▶ How could we record this?
- ▶ Could we record the square?
- ▶ Could we record the 4 equal parts?
- ▶ Could we record quarter in each quarter of the square?
- ▶ Could we record the word 'quarter' in one quarter?
- ▶ Could we record the symbol for a quarter in the other quarters?

- ▶ What fraction of the square is here?
- ▶ Is this a quarter of the square?
- ▶ Why is this fraction called a quarter?
- ▶ What is it a quarter as big as?
- ▶ Is it called a quarter because it's a quarter as big as 1 square?
- ▶ Is it called a quarter because it's a quarter of 1?
- ▶ How can we record this?

- ▶ What did we do the half to make a quarter?
- ▶ Did we divide our half in half again?
- ▶ Is a quarter half as big as a half?
- ▶ Is a quarter, half of a half?

- ▶ How could we record this?