

Grade 3 Lesson Summary

Overall Objectives

This lesson will help students to:

- name and count fractional parts;
- recognize and describe relationships between fractional parts and wholes.

Learning Expectations

Students will:

- Represent common fractions and mixed numbers using concrete materials; 3m3
- Represent and explain common fractions, presented in real-life situations, as part of a whole, part of a set, and part of a measure using concrete materials and drawings (e.g., find one-third of a length of ribbon by folding); 3m20

The code that follows each learning expectation comes from the Ontario Curriculum Unit Planner. See www.ocup.org for further details.

Materials

- Large quantity of pattern blocks
- Bins with red trapezoid, blue rhombus, and green triangle pattern blocks
- Cups for scooping pattern blocks
- “Wholes from Fractional Parts” Recording Sheet (one per student)
- Home Connections – “Building Wholes” (one per student)

Approach

Get Started – Name Fractional Parts

In a guided learning session:

- Provide students with pattern blocks, and instruct them to find a way to cover the yellow hexagon shape with another type of block.
- Discuss how it is possible to cover the hexagon with 2 red trapezoids, 3 blue rhombuses, and 6 green triangles. (It is impossible to form the hexagon shape using the small beige rhombuses or the orange squares.)
- Discuss the fractional name for the red trapezoid by asking questions such as the following:
 - How many red trapezoids does it take to cover the yellow hexagon?
 - What fraction is the red trapezoid of the yellow hexagon?
 - How do you know that the red trapezoid is one half of the hexagon shape?
- Pose similar questions to review the fractional names for the blue trapezoid (third) and the green triangle (sixth).

Get Started – Count Fractional Parts

In a guided learning session:

- Show the students a set of 7 red trapezoids.
- Place two trapezoids together to form a hexagon shape, and review the idea that each trapezoid is one half of the whole hexagon shape.
- Count the set of trapezoids together (one half, two halves, three halves, ... seven halves).
- Ask students to predict the number of whole hexagon shapes that can be formed with the halves (trapezoids).
- Compose as many hexagon shapes as possible using the trapezoids.
- Discuss how 7 halves can be arranged to form 3 whole hexagons and that one-half is left over. Explain to the students that there are "3 and a half hexagons".
- Repeat the activity with other quantities of red trapezoids, blue rhombuses, or green triangles.

Work on It – Model the Activity

In a guided learning session:

- Show the tubs containing red trapezoids, blue rhombuses, and green triangles. Review the fractional name of each type of block by discussing the relationship between each type of block and the yellow hexagon pattern block (e.g., three blue rhombuses cover a yellow hexagon, so each rhombus is one-third of the hexagon).
- Demonstrate the activity for the students and tell them what they will do:
 - Students will work with a partner. One student will use a cup to scoop out a quantity of pattern blocks from one of the bins.
 - Both students will count the pattern blocks aloud, using the fractional names of the blocks (e.g., one half, two halves, three halves, ...). Each student will note the count on a "Wholes from Fractional Parts" Recording Sheet.
 - Students will predict the number of whole hexagons that can be formed with the pattern blocks and record this number on their sheets.
 - Students will rearrange the pattern blocks to form whole hexagons. They will write the number of wholes and left-over blocks on their recording sheets.

Work on It – Observe Students

In a shared learning session:

- Observe how well students are able to count the fractional parts, rearrange the pattern blocks to make whole hexagons, and determine the number of wholes and left-over fractional parts.
- Pose questions such as:
 - How many halves (thirds, sixths) do you have here? How did you count them?
 - How many whole hexagons do you think you can form? Why do you think that?
 - Are you getting better at predicting the number of whole hexagons you can form? Why/Why not?
 - How many halves (thirds, sixths) do you need to make 2 wholes? 3 wholes? 4 wholes?

Reflect and Connect

In a guided learning session:

- Help students reflect on the activity and their learning by asking questions such as:
 - How many halves (thirds, sixths) did you need to make a whole?
 - What if we had a different kind of pattern block that was one fifth of the hexagon shape? How many fifths would we need to make a whole?
 - Do you need more halves or more thirds to make a whole? More thirds or more sixths? Why?
 - How many halves did you need to make 2 wholes? 3 wholes? 4 wholes? Do you see a pattern?
 - How many halves would you need to make 5 wholes? 6 wholes? 10 wholes?
 - How many thirds did you need to make 2 wholes? 3 wholes? 4 wholes? Do you see a pattern?
 - How many thirds would you need to make 5 wholes? 7 wholes? 10 wholes?

Assessment

Observe students to assess how well they:

- name and count fractional parts;
- rearrange fractional parts (pattern blocks) to form wholes (hexagons);
- determine, tell, and record the number of wholes and left-over fraction parts;
- determine the number of fractional parts needed to form 1, 2, and 3 wholes;
- describe relationships between fractional parts and wholes.

Adaptation/Extensions

Students can work with halves (red trapezoids) only if they have difficulty in counting different fractional parts and in arranging them to make wholes (hexagons). Consider using circle pieces as fractional parts if students misunderstand the fractions represented by the pattern blocks.

For students requiring a greater challenge, have them explain a way to determine:

- the number of halves (thirds, quarters/fourths, fifths, sixths) that are needed to make any number of wholes;
- the number of wholes that can be made with any number of halves (thirds, quarters/fourths, fifths, sixths).

Home Connections

Provide each student with a copy of Home Connections – “Building Wholes”. Encourage the students to play the game with someone at home. Provide opportunities for students to practise how they will explain the procedures of the game to friends and family members.