

Topic : 5N3 Fractions (IV) (Multiplication)

Subject : Mathematics

Level : Primary 5

Time of lesson: 35 mins in total

Prior knowledge:

Students are able to

1. Solve integer multiplication with multiplier 2 digits and multiplicand 3 digits.
2. Reduce the fraction to the simplest form.
3. Convert fractions by the methods for converting equivalent fractions.

Teaching objectives :

Upon completion of the lesson, students are able to

1. Visualize multiplication of fractions, for sums involving at most two operations.
2. Solve fraction multiplication by using 2-D shapes as the aids.

Teaching innovation adopted in the lesson, and the justifications:

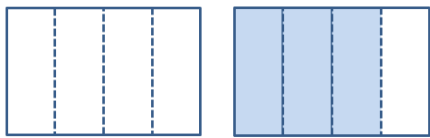
We form a group of two for the students (role A, B). They will follow different steps on the prepared list according to their roles. It apply the cooperative learning strategy (Student Teams-Achievement Division).

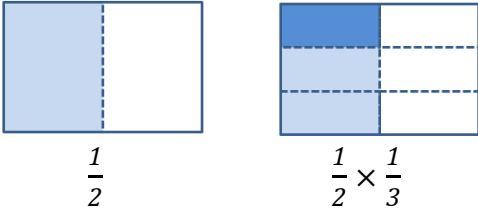
- (a) Whole-class presentation : The teacher will show how to do the worksheet , explain the steps and the role of student A and B,
- (b) Group Discussion: based on students' abilities, each 2 student will form a group (with at least one of them is good at maths if possible), let the stronger one to help the weaker one to finish the worksheet.
- (c) Discussion: invite the students present their picture and steps.
- (d) Test: give a similar worksheet to the students for homework to test their understanding.
- (e) Group recognition: reward the pair of students who do the worksheet well as group.

Teaching resources:

***(T: Teacher's script; S: Predicted students' answer; (): Correct answer)**

Purpose of teaching/Stage	Teaching sequence and activities	Resources	Time
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<p>1. Introduction -Using the concept of integer division to introduce the concept of fraction multiplication</p>	<p>Give a brief introduction to students: <u>What to learn in this lesson?</u> T: Today, we are going to understand the meaning of the multiplication between 2 fractions.</p> <p><u>Start from revising the multiplication between an integer and a fraction:</u></p> <ul style="list-style-type: none"> - Use $1 \times \frac{3}{4}$ as an example - invite students to explain on the blackboard <p>T: Can someone tell me the meaning of $1 \times \frac{3}{4}$? S: To divide 1 into 4 parts and take 3 parts (To divide 1 into 4 <u>equal</u> parts and take 3 parts)</p> <p><u>Revising steps to operate multiplication between an integer and a fraction graphically</u></p> <ul style="list-style-type: none"> - Use the PowerPoint to show how to divide the integer into several equal parts, and take some of the parts. $1 \times \frac{3}{4}$ means dividing 1 into 4 equal parts, and take 3 of the equal parts. <p>Suggested image for $1 \times \frac{3}{4}$</p> <div style="text-align: center;">  </div> <p style="text-align: center;"> 1 $\frac{3}{4}$ </p> <p><u>Lead in to the topic for the lesson:</u></p> <ul style="list-style-type: none"> - Show another example $\frac{1}{2} \times \frac{1}{3}$ <p>T: What are the differences between $[\frac{1}{2} \times \frac{1}{3}]$ and</p>	<p>PowerPoint</p>	<p>5 mins</p>
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	<p>$[1 \times \frac{3}{4}]?$ S: (The integer part is changed to a fraction.)</p> <p>Suggested image for $\frac{1}{2} \times \frac{1}{3}$</p> 		
<p>2. Students discuss how to use 2-D shapes in order to help calculating fraction multiplication.</p>	<p><u>How to solve the multiplication between 2 fractions graphically?</u> Group Activity:</p> <ul style="list-style-type: none"> - Each two students form a group - Each group will have to submit 1 worksheet (with 2 questions on it) - Try to draw figures and find out the answers of simple fraction multiplication questions on the worksheet. <p>Rules:</p> <ul style="list-style-type: none"> - Student sitting at the left be Student A and at the right be Student B - Student A and B will have to discuss how to draw the graph so as to represent the formula and attain the answer <u>together</u> (the linkage of graphic and step) <p>Student A: - Take the worksheet from teacher - Write down the results of the discussion on the worksheet.</p> <p>Student B: - Share their finding to classmates</p> <p><u>Steps of activity</u></p>	<p>PowerPoint</p> <p>Activity Worksheet</p> <p>Origami Paper x 52 (4 per group)</p>	<p>15 mins</p>

	<ol style="list-style-type: none"> 1. Teacher guides the students to finish the example. Using origami paper to help students draw 2-D shape. 2. 10 mins for students to finish the questions on worksheet as much as they. Students can raise up their hand if they have any problems. 3. While students are doing the worksheet, teacher can walk around the students to see if there is any difficulty that students are facing. If students have problems, teacher can provide some hints or tips to students. 4. Teacher ask students to show the answer by using origami paper. Teacher can know how many students get the idea. <p><u>Expected problem</u></p> <ul style="list-style-type: none"> - Problem: Drawing non-equal shape. <p>Solution: Teacher asks students to recall the example and the key sentence 'divide __ into __ <u>equal</u> parts and take __ parts'.</p>		
<p>3. Assessing if the students able to finish the worksheet correctly or not</p>	<p><u>How to solve the multiplication between 2 fractions graphically?</u></p> <p>Group Presentation:</p> <ul style="list-style-type: none"> - Select two groups of students to present their solutions to the class. (Find two groups with different answers if possible, so as to have further discussion) - During the presentation, if the presenting group have some problem to elaborate their idea, teacher can ask other students to provide help. - After the solution is presented, teacher ask the non-presenting groups if they have a 	<p>Microphone Visualizer</p>	<p>10 mins</p>

	<p>same or different answer in order to see how many students have answer correctly. This can help teacher to assess students' abilities.</p> <ul style="list-style-type: none"> - After presenting group present their ideas, teacher can ask students if they have any comment. - Finally, teacher provides feedback to the presenting group. Students hand in their worksheets. <p>Take the first question as example: (Feedback) T: For $\frac{1}{2} \times \frac{1}{3}$, we have to first draw $\frac{1}{2}$ of the diagram, then divided the diagram into 3 <u>equal</u> parts and take one of it.</p>		
4. Conclusion	<p><u>The concept of fraction multiplication</u> Recall the main concept of fraction multiplication taught in the lesson. Assign homework to students. T: For multiplication between 2 fractions, we have to first draw the diagram of the first fraction, then divided the diagram into <u>equal</u> parts and take required parts according to the second fraction.</p>	PowerPoint	5 mins