

End-of-Unit Assessment

Problem 1

In this problem, students identify and color fractions of rectangles.

Benchmark addressed:

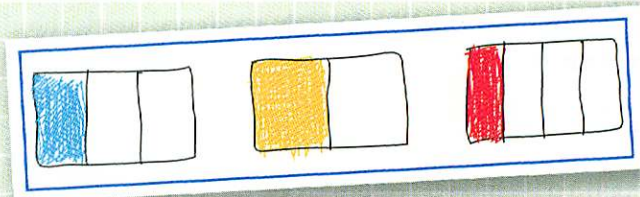
Benchmark 1: Identify $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ of a region.

In order to meet the benchmark, students' work should show that they can:

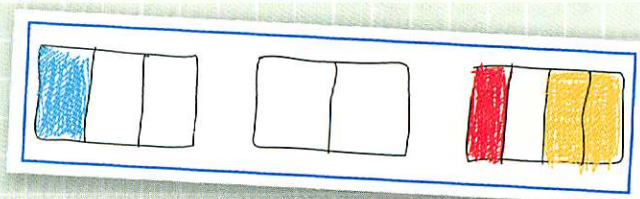
- Color 1 of the 3 regions of the first rectangle blue;
- Color 1 of the 2 regions of the second rectangle yellow or color 2 of the 4 regions in the third rectangle yellow;
- Color 1 of the 4 regions of the third rectangle red.

A student may color 2 of the 4 regions of the third rectangle yellow, demonstrating understanding that $\frac{2}{4}$ is equivalent to $\frac{1}{2}$.

Note that Anita chose to color $\frac{2}{4}$ of the third rectangle yellow indicating that she sees $\frac{2}{4}$ as another way of showing $\frac{1}{2}$.



Leo's Work



Anita's Work

Partially Meeting the Benchmark

Students who partially meet the benchmark may identify and color one of the fractional parts incorrectly, or they may identify only two of the three fractions. It is important to ask these students to double-check their work and to explain their work to you.

Not Meeting the Benchmark

Some students may not yet understand that $\frac{1}{2}$ is 1 of 2 equal parts, $\frac{1}{3}$ is 1 of 3 equal parts, and $\frac{1}{4}$ is 1 of 4 equal parts. Students who color the entire first rectangle blue, all of the second rectangle yellow, and the entire third rectangle red do not meet the benchmark. However, their work may indicate that they associate $\frac{1}{2}$ with a whole divided into 2 parts, $\frac{1}{3}$ with a whole divided into 3 parts, and $\frac{1}{4}$ with a whole divided into 4 parts.

Name _____ Date _____

Parts of a Whole, Parts of a Group

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Problem 1: Identifying Fractions

1. Color $\frac{1}{2}$ of a rectangle yellow.
2. Color $\frac{1}{3}$ of a rectangle blue.
3. Color $\frac{1}{4}$ of a rectangle red.

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Meeting the Benchmark

At the end of this unit, most second graders will fill in the rectangles as Leo does.

Problem 2

In this problem, students find $\frac{1}{2}$ of a set of objects.

Benchmark addressed:

Benchmark 2: Find $\frac{1}{2}$ of a set of objects.

In order to meet the benchmark, students' work should show that they can:

- Find $\frac{1}{2}$ of a set.

Problem 2: Finding One Half

Linda and Ebony's friend gave them 16 pens.

4. Can each girl get half? _____
5. How many pens does Linda get? _____
6. How many pens does Ebony get? _____

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M24 Unit 7

Session 2.6

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Meeting the Benchmark

Students who meet the benchmark will recognize that each girl can get half and will find that each girl gets 8 pens. At the end of this unit, almost all second graders will answer these questions correctly: "Yes, each girl can get half, and each girl gets 8 pens."

Some students know that $8 + 8 = 16$ and can use their knowledge of this combination to solve the problem. Other students may draw tally marks and divide them into two equal groups.

Partially Meeting the Benchmark

Some students may misinterpret the problem and may need help focusing on what the problem requires. For example, a student might start out by trying to share the 16 pens among three girls, perhaps because the class worked on a similar problem toward the end of the unit. You might point out that only two girls share the pens in this problem.

If the student is able to solve the problem correctly after receiving help, give him or her another similar problem to solve.

Not Meeting the Benchmark

Some students may write, "No, the girls cannot get half."

Holly said that one girl would get 7 pens and the other 9. Although Holly found a correct combination of 16, she did not recognize that it is possible for each girl to get half.

Problem 3

In this problem, students look at a Fraction Flag and consider two different perspectives about whether the flag is divided into thirds.

Benchmark addressed:

Benchmark 3: Recognize that a fraction divides the whole into *equal* parts.

In order to meet the benchmark, students' work should show that they can:

- Recognize whether fractional parts are equal.

Name _____

Date _____

Parts of a Whole, Parts of a Group



End-of-Unit Assessment (page 2 of 2)

Problem 3: Is It One Third?



Franco and Jake are thinking about the flag shown above.

Jake thinks that this flag **is** divided into thirds because it has 3 parts.

Franco thinks that this flag **is not** divided into thirds because the 3 parts are not equal.

Do you agree with Jake or Franco? Why?
(Continue your answer on the back if you need more space.)

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Meeting the Benchmark



Students who meet the benchmark will agree with Franco and explain that *thirds* means 3 equal parts. The following examples of student work provide a range of typical responses. All of these students meet the benchmark; they agree with Franco. Their responses give some indication of the importance of equal parts.

To support his answer, Simon wrote, “I know Franco is right because there is a big part, and the other parts are smaller.”

I know Franco is right because there is a big part. And the other parts are smaller.

Simon's Work

Chen also agreed with Franco. To support his answer, he drew a flag divided into 2 equal parts to show what $\frac{1}{2}$ looks like and a flag divided into 3 equal parts to show what $\frac{1}{3}$ looks like.

I agree with Franco.
Because if you make a flag like this  it will be $\frac{1}{2}$, and if you make a flag like this  it will be $\frac{1}{3}$.

Chen's Work

At times, you may want to ask students to clarify what they have written. For example, Rochelle explained that the darker portion of the flag (which is $\frac{1}{2}$) is bigger (than the other parts). She went on to say that if that part were made into $\frac{2}{4}$, she would agree with Jake.

I agree with Franco because the darker $\frac{1}{2}$ is bigger, but if you split the big part in 2 with Jake $\frac{2}{4}$ then I would agree.

Rochelle's Work

Rochelle sees not only that the three regions are unequal but also that the black region could be divided to make up $\frac{2}{4}$ of the flag. Her teacher may want to ask Rochelle what she meant when she said she would then agree with Jake. For example, does she agree that the flag would be divided into thirds? If so, she would not meet the benchmark. Does she mean that when the black region is split, the flag would be divided into *fourths*? If so, she would meet the benchmark.

Partially Meeting the Benchmark

Students who partially meet the benchmark may agree with Franco and provide relevant explanations, but their writing may contain errors about the meaning of *thirds*. Again, provide these students with an opportunity to express their thinking orally.

For example, Leigh wrote the following:

I agree with Franko because only two thirds of the rectangle are equal, one of them is not equal.

Leigh's Work

Leigh's reasoning is relevant to the question, but her explanation reveals her misunderstanding. She refers to the white and gray portions of the flag as two *thirds*, when, by agreeing with Franco, she has already said that the flag is not divided into thirds. Her teacher might ask her to explain orally to see what she understands about the white and gray portions of the flag. If Leigh had written that "only 2 *parts* of the rectangle are equal," her response would have been fully correct.

Not Meeting the Benchmark

Students, such as Randall, who do not meet the benchmark will agree with Jake, noting that there are three parts but not yet knowing that thirds divide a whole into 3 *equal* parts.

I agree with Jake
Because if you count them there are 3.

Randall's Work

Some students may agree with Franco but may offer an explanation that is irrelevant to the flag's being divided into thirds. For example, Malcolm wrote the following:

I think franco is rit
because 3
is not a eve
number.

Malcolm's Work

These ideas about fractions are complex for second graders, and some students will need more opportunities to sort them out. In the Grade 2 measurement unit, *Measuring Length and Time*, students will work with fractions again when they measure objects and when they mark timelines in $\frac{1}{2}$ - or $\frac{1}{4}$ -hour intervals.

Consider having students who do not meet the benchmarks of this unit do more work with Fraction Flags or solve more "Linda and Ebony" problems. Look for opportunities in daily activities to ask questions about one half, one third, and one fourth.