LESSON PLAN

Candidate's name: Joni Hesselgrave

Grade/Class/Subject:	Grade 4 Mathematics	School:	Any School
Date:	TBD	Allotted Time:	2 x 45 minutes
Topic/Title:	Estimating & Comparing Fractions Using Benchmarks		

1. LESSON ORIENTATION
Key resources: Instructional Design Map

> *Briefly, describe purpose of lesson, and anything else to note about the context of lesson, students, or class, e.g. emergent learning needs being met at this time, elements of focus or emphasis, special occasions or school events.*

In this lesson, which is spread over **two 45-minute math blocks**, students will be introduced to, and work toward mastery of, estimating and comparing fractions using benchmarks (a known size or amount that helps us understand a different size or amount). I call this the "Benchmark Strategy" and it is extremely useful for estimating and comparing fractions that have different numerators and denominators as it eliminates the need to find a common denominator and multiply (which can be challenging for young learners). Instead, students are encouraged to use models and visual aids (area models, fraction strips, fraction circles, or a number line) to estimate and compare fractions using benchmarks (i.e., zero, half, and a whole).

Monday - Block 1 (outline included):
First, students will be introduced to the strategy, watch an *explanatory video*, and discuss the strategy's usefulness.

Second, students will participate in a *whole class activity* where they will create a model of a number line (i.e. stretch a long piece of string across the front of the classroom and clip on benchmarks 0, ½, and 1). Then, each student will get a different fraction card, which they will clip on the number line according to where they think it goes relative to the benchmarks (i.e. is it closest to 0, ½ or 1?). Once all students' cards have been clipped, we will move along the number line and discuss each card's positioning—adjusting, reasoning, and moving as needed.

Third, students will pair up with a partner (or two) to do a *Think-Pair-Share activity*. Each pair/group will get a whiteboard, a dry-erase marker, and an eraser, and will have to work together to answer a set of questions (i.e. Task Cards), which will be displayed on the Smartboard. The class will come back together and groups will share and discuss their answers. Further Task Cards can be displayed on the Smartboard and completed if time permits.

Tuesday (outline not included):
Time allotted for Task Card completion and further practice (see supplemental resources for "Benchmark Flash Cards" and other games).

Wednesday - Block 2 (outline included):
First, students will *review* what was covered in the first block (by way of 1-2 short videos).

Second, students will work together to complete a whole class "Benchmark Fractions" *digital sort*, which will be displayed on the Smartboard.

Third, students will complete a final *pencil-to-paper* task (i.e. the booklet) that will allow them to show their understanding and solidify the curriculum learning intentions (i.e. the "Do-Know-Understand").

Thursday & Friday (outlines not included):
Time allotted for completion of work booklet. Early finishers can play the "Comparing Fractions Game" at the end of the booklet.

2. CORE COMPETENCIES

Key resources: https://curriculum.gov.bc.ca/competencies

Core /Sub-Core Competencies *(check all that apply):*	*Describe briefly how you intend to embed Core Competencies in your lesson, or the role that they have in your lesson.*
✓ COMMUNICATION – Communicating ✓ COMMUNICATION – Collaborating ☐ THINKING – Creative Thinking ✓ THINKING – Critical Thinking ✓ THINKING – Reflective Thinking ☐ PERSONAL AND SOCIAL – Personal Awareness and Responsibility ☐ PERSONAL AND SOCIAL – Positive Personal and Cultural Identity ☐ PERSONAL AND SOCIAL – Social Awareness and Responsibility	**C** Communicating encompasses the set of abilities that people use to impart and exchange information, experiences, and ideas; to explore the world around them; and to understand and effectively use communication forms, strategies, and technologies. ● Students will be active listeners, make connections, and ask clarifying and extending questions when appropriate. ● Students will share their ideas and try to connect them to others' ideas. ● Students will represent mathematical ideas and concepts in concrete, pictorial, and symbolic forms. **C** Collaborating involves the skills, strategies, and dispositions that people use to work together to pursue common purposes and accomplish common goals. People who collaborate effectively recognize how combining others' perspectives, strategies, and efforts with their own enhances collective understanding, use, and impact. They value the contributions of group members, interact supportively and effectively using inclusive practices, and strive for shared commitment and mutual benefit. ● Students will contribute during group activities, cooperate with others, and listen respectfully to their ideas. ● Students will collaborate with a partner to practice and understand estimating and comparing fractions using benchmarks (i.e. during the Think-Pair-Share Activity). **T** Critical and Reflective Thinking encompasses a set of abilities that students use to examine their own thinking and that of others. This involves making judgments based on reasoning, where students consider options, analyze options using specific criteria, and draw conclusions. People who think critically and reflectively are analytical and investigative, willing to question and challenge their own thoughts, ideas, and assumptions and challenge those of others. They reflect on the information they receive through observation, experience, and other forms of communication to solve problems, design products, understand events, and address issues. A critical

	thinker uses their ideas, experiences, and reflections to set goals, make judgments, and refine their thinking.
	● Students will engage in mathematical inquiry, identifying and investigating fractions and benchmarks. ● Students will explore with a purpose and use the Benchmark Strategy to estimate & compare fractions. ● Students will explore the possibilities that open up when they use benchmarks and reflect on the process. ● Students will apply critical, metacognitive, and reflective thinking in applying the Benchmark Strategy, and will relate this thinking to other experiences, using this process to identify ways to improve or adapt their approach to learning. ● Students will reflect on and assess their experiences, thinking, learning process, work, and progress in using benchmarks to estimate & compare fractions. ● Students will give, receive, and act on feedback.

3. INDIGENOUS WORLDVIEWS AND PERSPECTIVES
Key resources: First Peoples Principles of Learning (FPPL); Aboriginal Worldviews and Perspectives in the Classroom

FPPL to be included in this lesson *(check all that apply):*	*How will you embed Indigenous worldviews, perspectives, or FPPL in the lesson?*
✓ Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors. ✓ Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). ✓ Learning involves recognizing the consequences of one's actions. ☐ Learning involves generational roles and responsibilities. ☐ Learning recognizes the role of Indigenous knowledge. ☐ Learning is embedded in memory, history, and story. ✓ Learning involves patience and time. ☐ Learning requires exploration of one's identity. ☐ Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.	In our Mathematics lessons, students are encouraged to be patient and kind to themselves and each other as they learn new concepts. Lessons will be delivered via open, non-judgmental group discussions, built upon positive teacher/student and student/student relationships and connections. Ideas and concepts will be learned experientially, through a mixture of explicit instruction, modeling, scaffolded support, practice, and student-doing.

4. BIG IDEAS
Key resources: https://curriculum.gov.bc.ca/
(choose course under Curriculum, match lesson to one or more Big Ideas)

What are students expected to understand? How is this lesson connected to Big Idea/s or an essential question?
Big Idea: Fractions are types of numbers that can represent quantities.
Essential Question: How can we use benchmarks to estimate and compare fractions?

5. LEARNING STANDARDS/INTENTIONS
Key resources: https://curriculum.gov.bc.ca/ (choose course under Curriculum)

Curricular Competencies: *What are students expected to do?*	Content: *What are students expected to learn?*

During this lesson, students will participate in large and small group discussions and activities, as well perform independent work.
 	
In this lesson, students are expected to **DO** the following:
 	
1. **Reasoning and analyzing**
    ● Use reasoning to explore and make connections.
    ● Estimate reasonably.
    ● Develop mental math strategies and abilities to make sense of quantities.
    ● Use technology to explore mathematics.
    ● Model mathematics in contextualized experiences.
 	
2. **Understanding and solving**
    ● Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem-solving.
    ● Visualize to explore mathematical concepts.
    ● Develop and use multiple strategies to engage in problem solving.
 	
3. **Communicating and representing**
    ● Communicate mathematical thinking.
    ● Use mathematical vocabulary and language to contribute to mathematical discussions.
    ● Explain and justify mathematical ideas and decisions.
    ● Represent mathematical ideas in concrete, pictorial, and symbolic forms.
 	
4. **Connecting and reflecting**
    ● Reflect on mathematical thinking.
    ● Connect mathematical concepts to each other and to other areas and personal interests.
	Prior to this lesson, students will know that fractions are numerical quantities that represent parts of a whole, each with a denominator indicating the number of equal parts that make up the whole, and a numerator indicating the number of equal parts used or taken from the whole. They will also know how to compare fractions with common numerators and common denominators.
	
	In this lesson, students are expected to **KNOW** the following:
	
	    ● How to estimate and compare fractions with uncommon numerators and denominators using benchmarks.

6. ASSESSMENT PLAN
Key resources: [Instructional Design Map](#) and https://curriculum.gov.bc.ca/classroom-assessment

How will students demonstrate their learning or achieve the learning intentions? How will the evidence be documented and shared? Mention any opportunities for feedback, self-assessment, peer assessment and teacher assessment. What tools, structures, or rubrics will you use to assess student learning (e.g. Performance Standard Quick Scale)? Will the assessments be formative, summative, or both?

Students will demonstrate their learning and understanding of estimating and comparing fractions using benchmarks (i.e. the Benchmark Strategy) several ways:

1. By *engaging* in the classroom discussions, and with the explanatory videos.
2. By *participating* in the whole class number line model/activity.
3. By *working collaboratively to solve* the Task Cards in the Think-Pair-Share activity.
4. By *contributing* to the whole class "Benchmark Fractions" digital sort.
5. By *self-assessing* their understanding in thumbs up/down polls.
6. By *completing* the final, **summative**, pencil-to-paper task (i.e. the booklet).

Students will receive **formative feedback** at each stage of learning.

Student booklets will be handed in at the end of the block so that the teacher can review and provide feedback to students on where they are in their learning (vs. where they need to be) before the next block. Instruction can then be adjusted, with the teacher reviewing and/or re-teaching when necessary, to whomever necessary. Students will complete corrections in their booklets before handing them in at the end of the week for **summative feedback.**

Throughout the week, students will have ample opportunity to practice, gain teacher feedback, and receive extra support as they work toward mastery of the concept.

7. DESIGN CONSIDERATIONS
Key resources: [Instructional Design Map](#)

Make brief notes to indicate how the lesson will meet needs of your students for: <u>differentiation</u>, especially for known exceptionalities, learning differences or barriers, and language abilities; <u>inclusion</u> of diverse needs, interests, cultural safety and relevance; <u>higher order thinking</u>; <u>motivations</u> and specific <u>adaptations or modifications</u> for identified students or behavioural challenges. Mention any other design notes of importance, e.g. cross-curricular connections, organization or management strategies you plan to use, extensions for students that need or want a challenge.

It is essential that all students be included in the lessons and work blocks. Effective UDL strategies (tailored to the classroom and students) will be utilized to ensure that lessons and tasks are accessible to all learners.

Lessons will aim for a lively pace, consist of explicit oral and visual instruction, and be interwoven with technology and hands-on activities to engage all learners. Composite tasks will be broken down into steps and parts, and the robust whole class discussions and Think-Pair-Share activity will be geared toward an intensified understanding that will prepare students for independent work.

When necessary, additional support and further accommodations will be made for individual students.

Required preparation: *Mention briefly the resources, material, or technology you need to have ready, or special tasks to do before the lesson starts, e.g. rearrange desks, book a room or equipment.*

Purchase and download the following supplemental resources, which are used in this lesson:
Alyssa teaches. Benchmark Fractions Bundle. TpT.
https://www.teacherspayteachers.com/Product/Benchmark-Fractions-Bundle-4395187

For Block 1:
- Open the following video and have it ready to display on the Smartboard (starting at 0:22):
  - ▶ Benchmark Fraction Comparisons
- Buy or collect a long piece of string and enough clothespins/clips to complete the number line model.
- Print & cut enough fraction cards from "Using Benchmarks to Compare Fractions: Flash Cards." (Alyssa teaches' *Benchmark Fractions Bundle*. TpT). Might need to make more depending on the size of the class.
- Open "Using Benchmarks to Compare Fractions: TASK CARDS." (Alyssa teaches' *Benchmark Fractions Bundle*. TpT) and have ready/oriented to display on the Smartboard (for Think-Pair-Share activity).
- Ensure that there are enough whiteboards, dry erase markers, and erasers for the Think-Pair-Share activity.

For Block 2:
- Open the following videos and have them ready to display on the Smartboard:
  - ▶ Compare fractions using the benchmark fraction 1/2
  - ▶ Compare fractions using the benchmark of one whole
- Open "Print & Digital Sort: Benchmark Fractions" (Alyssa teaches' *Benchmark Fractions Bundle*. TpT) and then click the link to open the Google Slide containing the digital sort. Have ready for the class activity.
- Have visuals of "Benchmark Fractions", "Fraction Strips" & "Fraction Circles" on the computer, ready to display (attached at the end of this lesson).
- Photocopy "Benchmark Fractions", "Fraction Circles", and "Fraction Strips" - one per student.
- Open "Benchmark Fractions: Poster & Printables" (Alyssa teaches' *Benchmark Fractions Bundle*. TpT) and have it ready to show on the Smartboard.
- Print/Photocopy booklets (double sided) - pages 3-8 of "Benchmark Fractions: Poster & Printables."
- Print the booklet's answer key for marking - pages 9-12 of "Benchmark Fractions: Poster & Printables."

8. **LESSON OUTLINE - BLOCK 1 - 45 minutes**

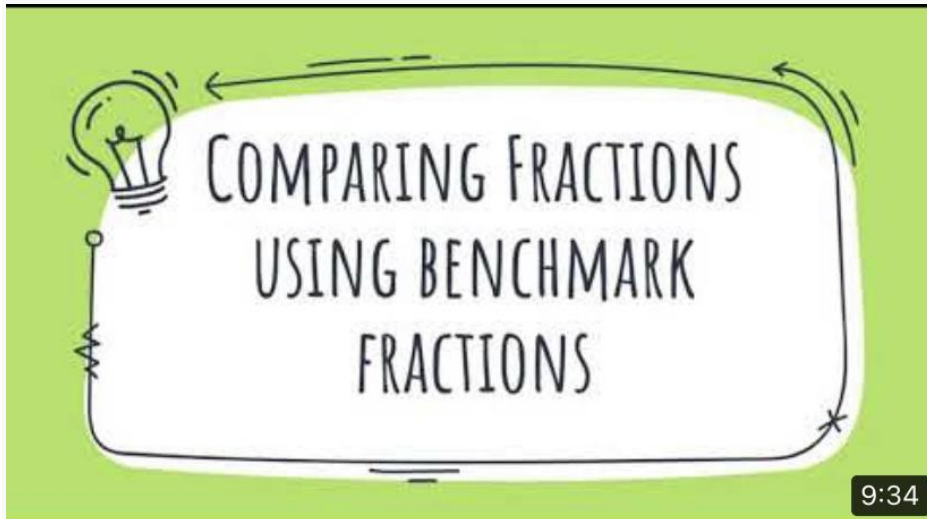| Instructional Steps	Student Does/Teacher Does *(learning activities to target learning intentions)*	Pacing
OPENING: *e.g. greeting students, sharing intentions, look back at what was learned, look ahead to what will be learning, use of a hook, motivator, or other introduction to engage students and activate thinking and prior knowledge*	Cue ALL students that it is time for Math, referring them to the visual schedule. When students are seated, organized, quiet, and "eyes on," say: "Today, you will be introduced to a new strategy that will help you compare fractions with uncommon numerators and denominators. This strategy is called the 'Benchmark Strategy' because it uses benchmarks—a known size or amount that helps us understand a different size or amount. It is a visual strategy and can be performed using area models, fraction strips, fraction circles, or a number line. After some practice, you will be able to do much of this estimating and comparing mentally, by simply picturing the fractions in your brain and comparing it to the benchmarks of 0, ½, and 1."	Quick transition to lesson; interactive and lively pace. (2.5 min)

BODY:		
● *Best order of activities to maximize learning -- each task moves students towards learning intentions* ● *Students are interacting with new ideas, actively constructing knowledge and understanding, and given opportunities to practice, apply, or share learning, ask questions and get feedback* ● *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modeling* ● *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Show the introductory video, pausing as needed to engage students in discussion and allow them time to digest and understand the information. STUDENTS DO: Quietly watch and listen to the video. Engage in class discussion when the video is paused. ▶ Benchmark Fraction Comparisons - START at 0:22 seconds of the video!! I DO: Say, "as you can see, this strategy is particularly useful for comparing fractions with uncommon numerators and denominators as it eliminates the need to find a common denominator and perform multiplication." I DO: Ask students if they have any questions or concerns. STUDENTS DO: Raise questions and/or concerns. I DO: Answer student questions and concerns. I DO: Then say, "Ok, now it's time for us to take what we have learned about the Benchmark Strategy and put it into action! Are you ready?!?" STUDENTS DO: Show enthusiasm and get ready to participate. I DO: Explain the whole class number line modeling activity by saying, "Ok, we are going to make a model of a number line by stretching a long piece of string across the front of the classroom. Then, I am going to have three volunteers clip the benchmarks 0, ½, and 1 onto the correct spot on the number line. Then, each student is going to get a different fraction card, which they will have to clip onto the number line according to where they think it goes relative to the benchmarks (i.e. is it closest to 0, ½ or 1?). I will call students up one at a time; once all students' cards have been clipped, we will go along the number line and discuss each card's positioning—adjusting, reasoning, and moving as needed. Does anyone have any questions about what we are going to do?"	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (10 min instruction, followed by 30 min to complete the activities)

STUDENTS DO: Raise questions and/or concerns. Most likely ask if they can be the ones to put up the benchmark fractions.

I DO: Answer student questions and concerns. Then, choose three students to take on the role of placing the benchmarks, and two students to hold the ends of the string (best done randomly if you have names on popsicle sticks). Then, unroll the string, cut to length, and have the two "holders" take their positions at the front of the class (one on each side).

I DO: Ask the three students with benchmarks to place them on the number line using the clips provided. Guide if necessary.

STUDENTS DO: Clip the three benchmarks (0, ½, and 1) on the number line.

I DO: Hand all the other students a clothespin/clip and a fraction card. Then, one at a time, call students up to place their cards where they think they should go–using what they have learned about the Benchmark Strategy.

STUDENTS DO: Go up, when called, and place a fraction card where they think it should be relative to the benchmarks (i.e. Is it closest to 0, ½ or 1? How close?)

I DO: Once all the fraction cards have been placed, say "ok, let's see how we did!" Move along the number line and discuss each card's positioning—adjusting, reasoning, and moving as needed. Talk aloud and probe students with questions and queries that will get them engaged and solidify understanding. Once everyone is satisfied with all of the fraction card placements, congratulate the class, and praise them on their ability to work together and use the Benchmark Strategy.

I DO: Ask students to retrieve the cards and clips off the string (doesn't have to be the one they originally had) and put them in the bin provided. Thank the "holders" and have them put the string in the bin as well.

STUDENTS DO: Retrieve the fraction cards and clips and place them in the bin, along with the string.

I DO: Say, "Ok, let's continue practicing this strategy. When I say, you will need to find a partner (or two) who you are able to work well with. Together, you will solve a series of tasks using the Benchmark Strategy. You will have 3-5 minutes to solve 4 questions, which will be displayed on the Smartboard. You will write your answers on a whiteboard and must be prepared to share your solutions with the class when the time is up. Once you are in your group, one member of each group will need to come and get a whiteboard, a dry-erase marker, and an eraser. Then, find a place to sit where you can see the Smartboard clearly. Does anyone have any questions before we begin?"
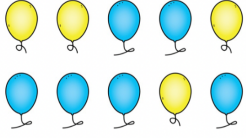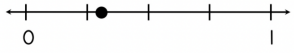
STUDENTS DO: Raise questions and/or concerns.

I DO: Answer student questions and concerns. Then say, "ok, it's time to get into your pairs or small groups and collect your supplies!"

(Alternatively, groups could be decided by the teacher).

STUDENTS DO: Form pairs/groups, collect supplies, and find a spot to sit.

I DO: Once everyone is ready and eyes on, display the first set of task cards:

Benchmark Fractions

Look at the fraction of the balloons that are yellow. Is that fraction closest to 0, $\frac{1}{2}$, or 1?

1

Benchmark Fractions

Is the fraction below closest to 0, $\frac{1}{2}$, or 1?

2

Benchmark Fractions

Is the fraction below closest to 0, $\frac{1}{2}$, or 1?

0   1

3

Benchmark Fractions

$2/11$ is closest to:

A. 0 B. $\frac{1}{2}$ C. 1

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STUDENTS DO: Work in pairs/groups to solve the four questions and then write down their answers on the whiteboards (i.e. 1A, 2A, 3A, and 4A).

I DO: Circulate the room to observe, listen, probe student thinking, and offer feedback/guidance.

I DO: Once groups are showing they are getting close to being done, tell them that they have 20 seconds to finish up. Countdown from 5 seconds, hand raised, and wait for students' attention.

STUDENTS DO: Finish up and sit quietly when the teacher has gotten to 1.

I DO: Ask groups to share their answers.

WE DO: Have a class discussion. Pairs/groups share while the teacher guides, offers feedback, and probes further thinking.

If time, additional sets of questions can be displayed on the Smartboard and completed in the same fashion (time permitting).

Additional task cards:

Benchmark Fractions (Card 5)

Which fraction is closest to $\frac{1}{2}$, but not equal to $\frac{1}{2}$?

A. [figure] C. [figure]

B. [figure] D. [figure]

Benchmark Fractions (Card 6)

Which fraction is closest to $\frac{1}{2}$, but not less than or equal to $\frac{1}{2}$?

A. $\frac{2}{5}$ C. $\frac{3}{11}$

B. $\frac{5}{9}$ D. $\frac{6}{12}$

Benchmark Fractions (Card 7)

Which fraction is closest to 1, but not greater than 1?

A. $\frac{1}{6}$ C. $\frac{9}{10}$

B. $\frac{5}{8}$ D. $\frac{13}{12}$

Benchmark Fractions (Card 8)

Which fraction is closest to 1?

A. $\frac{1}{3}$ C. $\frac{3}{4}$

B. $\frac{7}{8}$ D. $\frac{3}{6}$

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Benchmark Fractions (Card 9)

Which answer shows the benchmark numbers that will help you compare $\frac{1}{8}$ and $\frac{7}{12}$?

A. $0 < \frac{1}{2}$ C. $1 > \frac{1}{2}$

B. $\frac{1}{2} = \frac{1}{2}$ D. $0 < 1$

Benchmark Fractions (Card 10)

Which number goes in the box to make the statement true?

$$\frac{3}{6} < \frac{\square}{8}$$

A. 2   C. 4

B. 3   D. 5

Benchmark Fractions (Card 11)

Which answer shows the benchmark numbers that will help you compare $\frac{4}{10}$ and $\frac{5}{9}$?

A. $0 < 1$ C. $\frac{1}{2} < 1$

B. $\frac{1}{2} > 0$ D. $1 = 1$

Benchmark Fractions (Card 12)

Which number goes in the box to make the statement true?

$$\frac{10}{11} < \frac{\square}{7}$$

A. 0   C. 5

B. 4   D. 7

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Benchmark Fractions (Card 13)

Use benchmarks to compare the fractions.

$$\frac{3}{5} \; \square \; \frac{4}{11}$$

What symbol belongs in the box?
Choose <, >, or =.

Benchmark Fractions (Card 14)

Use benchmarks to order these fractions from least to greatest.

A. $\frac{2}{4}$, $\frac{1}{3}$, $\frac{6}{10}$ C. $\frac{1}{3}$, $\frac{6}{10}$, $\frac{2}{4}$

B. $\frac{6}{10}$, $\frac{2}{4}$, $\frac{1}{3}$ D. $\frac{1}{3}$, $\frac{2}{4}$, $\frac{6}{10}$

Benchmark Fractions (Card 15)

Use benchmarks to compare the fractions.

$$\frac{5}{12} \; \square \; \frac{4}{7}$$

What symbol belongs in the box?
Choose <, >, or =.

Benchmark Fractions (Card 16)

Use benchmarks to order these fractions from least to greatest.

A. $\frac{2}{5}$, $\frac{3}{12}$, $\frac{7}{4}$ C. $\frac{3}{12}$, $\frac{2}{5}$, $\frac{7}{4}$

B. $\frac{7}{4}$, $\frac{2}{5}$, $\frac{3}{12}$ D. $\frac{3}{12}$, $\frac{7}{4}$, $\frac{2}{5}$

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CLOSING:	Cue students that it is nearing the end of Math and that they need to wrap up what they are working on. Let them know that they will have more time tomorrow to work on completing further task cards.	Wrapping it up! (2.5 min)
● Closure tasks or plans to gather, solidify, deepen or reflect on the learning ● review or summary if applicable ● anticipate what's next in learning ● "housekeeping" items (e.g. due dates, next day requirements	Ask students to relate their level of understanding by a show of "thumbs up" (I get it), "thumbs in the middle" (I get some of it), or "thumbs down" (I am confused/do not get it). Cue ALL students to move on to the next activity/scheduled task	

9. REFLECTION - Block 1

● *Did any reflection <u>in</u> learning occur, e.g. that shifted the lesson in progress?*
● *What went well in the lesson (reflection <u>on</u> learning)?*
● *What would you revise if you taught the lesson again?*
● *How do the lesson and learners inform you about necessary next steps?*
● *Comment on ways you modeled & acted within the Professional Standards of BC Educators & BCTF Code of Ethics?*
● *If this lesson is being observed, do you have a specific observation focus in mind?*

*To be completed at the end of the lesson/block.

LESSON OUTLINE - BLOCK 2 - 45 Minutes

Instructional Steps	Student Does/Teacher Does *(learning activities to target learning intentions)*	Pacing
OPENING: *e.g. greeting students, sharing intentions, look back at what was learned, look ahead to what will be learning, use of a hook, motivator, or other introduction to engage students and activate thinking and prior knowledge*	Cue ALL students that it is time for Math, referring them to the visual schedule. When students are seated, organized, quiet, and "eyes on," say: "Today, we will start by watching a few videos to review and refresh what we previously learned about estimating and comparing fractions using benchmarks–that is, our Benchmark Strategy. Then, we will work as a class to complete a 'Benchmark Fractions' *digital sort*. Finally, you will work independently to complete a work booklet that will allow you to show your understanding and solidify your learning!"	Quick transition to lesson; interactive and lively pace. (2.5 min)
BODY: ●*Best order of activities to maximize learning -- each task moves students towards learning intentions* ●*Students are interacting with new ideas, actively constructing knowledge and understanding, and given opportunities to practice, apply, or share learning, ask questions and get feedback* ●*Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modeling* ●*Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*	I DO: Show the following videos to help review and solidify the information that was covered in Block 1. Pause as needed to engage students in discussion, and allow them time to digest and understand the information. If students seem to be catching on, only show the first video; if it appears they need more clarification, watch the second video as well. STUDENTS DO: Quietly watch and listen to the videos. Engage in class discussion when the videos are paused. ▶ Compare fractions using the benchmark fraction 1/2 How do you compare fractions using a benchmark fraction, such as $\frac{1}{2}$? $\frac{5}{8}$ (?) $\frac{2}{5}$ LEARNZILLION ▶ Compare fractions using the benchmark of one whole	Interactive, Responsive and lively pace. Redirect students who go off-task as needed. (10 min instruction, followed by 30 min to complete the activities)

How do you compare fractions using a benchmark like one whole?

$$\frac{5}{6} \quad \boxed{?} \quad \frac{4}{3}$$

LEARN ZILLION

I DO: Ask students if they have any questions or concerns.

STUDENTS DO: Raise questions and/or concerns.

I DO: Answer student questions and concerns. Then say,
"Ok, now it's time for us to continue putting this strategy to work for us as we sort fractions! Are you ready?!?" Reference digital sort on Smartboard:

Benchmark Fractions

Closest to 0	Closest to 1/2	Closest to 1

$\frac{17}{20}$ $\frac{2}{8}$ 24

$\frac{3}{6}$ $\frac{4}{5}$

$\frac{9}{11}$ $\frac{26}{50}$

$\frac{1}{9}$ $\frac{7}{12}$

$\frac{12}{14}$ $\frac{7}{40}$

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STUDENTS DO: Show enthusiasm and get ready to participate.

I DO: Explain that, like in the last block with the number line, we will be using the benchmark strategy to sort fractions; this time into columns instead of along the number line. Here, all they have to do is decide whether each fraction is "Closest to 0", "Closest to ½", or "Closest to 1".

I DO: Ask students if they have any questions or concerns.

STUDENTS DO: Raise questions and/or concerns.

I DO: Answer student questions and concerns. Then, one by one, ask students to come up and place digital fraction cards into correct columns.

STUDENTS DO: Come up, when called, and move a digital fraction card into the column where they think it belongs (i.e. "Closest to 0", "Closest to ½", or "Closest to 1").

I DO: Once all of the digital fraction cards have been sorted, say "ok, let's see how we did!" Go through each column and discuss each card's positioning—adjusting, reasoning, and moving as needed. Talking aloud and probing students with questions and queries that will get them engaged and solidify understanding. Once everyone is satisfied with the digital fraction card placements, congratulate the class on a job well done!

STUDENTS DO: Be proud of themselves!

I DO: Say, ok, "now it's time for each of you to show what you know by completing an independent *pencil-to-paper* task–a booklet that will bring together what you know about fractions in general to what you now know about estimating and comparing fractions using benchmarks! This task will help solidify your understanding and prepare you for future fraction work."

I DO: On the Smartboard, bring up and review the following visual aids: "Benchmark Fractions", "Fraction Strips" & "Fraction Circles." Let students know that these tools will be available at the front for their reference when they are working on the booklet. Then, bring up pages 3-8 of "Benchmark Fractions: Poster & Printables" and review with students so that they understand the types of questions in the booklet.

STUDENTS DO: Listen attentively. Raise hands if they have questions or concerns.

I DO: Once all of the pages have been reviewed and students know what to expect, ask if there are any further questions or concerns.

STUDENTS DO: Raise questions and/or concerns.

I DO: Answer student questions and concerns. Then, let students know that they have the rest of the math block–and additional time tomorrow and the next day–to complete the booklet. If they get stuck, they are encouraged to ask for support. Guidance and feedback will be provided to all!

	I DO: Have the hand-out helpers distribute the photocopied booklets and remind students that this must be done in pencil and that they are welcome to grab any of the visual aids from the front table (reference the stacks of photocopied "Benchmark Fractions", "Fraction Strips" & "Fraction Circles"). STUDENTS DO: Get out their pencils, grab any visual tools they want, and start working on the booklet. I DO: Circulate the classroom to offer support, guidance, and feedback.	
CLOSING: ● *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* ● *review or summary if applicable* ● *anticipate what's next in learning* ● *"housekeeping" items (e.g. due dates, next day requirements*	Cue students that it is nearing the end of Math and that (1) they should wrap up the question they are working on, and (2) hand in what they have completed (with their name clearly indicated). Ask students to relate their level of understanding by a show of "thumbs up" (I get it), "thumbs in the middle" (I get some of it), or "thumbs down" (I am confused/do not get it). Let students know that I will return their practice questions tomorrow, with feedback, and that there will be time for them to do corrections, ask clarifying questions, and gain more practice. Cue ALL students to move on to the next activity/scheduled task	Wrapping it up! (2.5 min)

REFLECTION - Block 2

● *Did any reflection <u>in</u> learning occur, e.g. that shifted the lesson in progress?* ● *What went well in the lesson (reflection <u>on</u> learning)?* ● *What would you revise if you taught the lesson again?* ● *How do the lesson and learners inform you about necessary next steps?* ● *Comment on ways you modeled & acted within the Professional Standards of BC Educators & BCTF Code of Ethics?* ● *If this lesson is being observed, do you have a specific observation focus in mind?*
*To be completed at the end of the lesson/each block.

Supplemental Resources:

Alyssa teaches (2014). "Using Benchmarks to Compare Fractions: TASK CARDS." In, *Benchmark Fractions Bundle*. TpT. Purchased and downloaded June 7, 2022 from
https://www.teacherspayteachers.com/Product/Benchmark-Fractions-Bundle-4395187

Alyssa teaches (2015). "Using Benchmarks to Compare Fractions: Flash Cards." In, *Benchmark Fractions Bundle*. TpT. Purchased and downloaded June 7, 2022 from
https://www.teacherspayteachers.com/Product/Benchmark-Fractions-Bundle-4395187

Alyssa teaches (2016). "Print & Digital Sort: Benchmark Fractions." In, *Benchmark Fractions Bundle*. TpT. Purchased and downloaded June 7, 2022 from
https://www.teacherspayteachers.com/Product/Benchmark-Fractions-Bundle-4395187

Alyssa teaches (2019). "Benchmark Fractions: Posters & Printables."In, *Benchmark Fractions Bundle*. TpT. Purchased and downloaded June 7, 2022 from
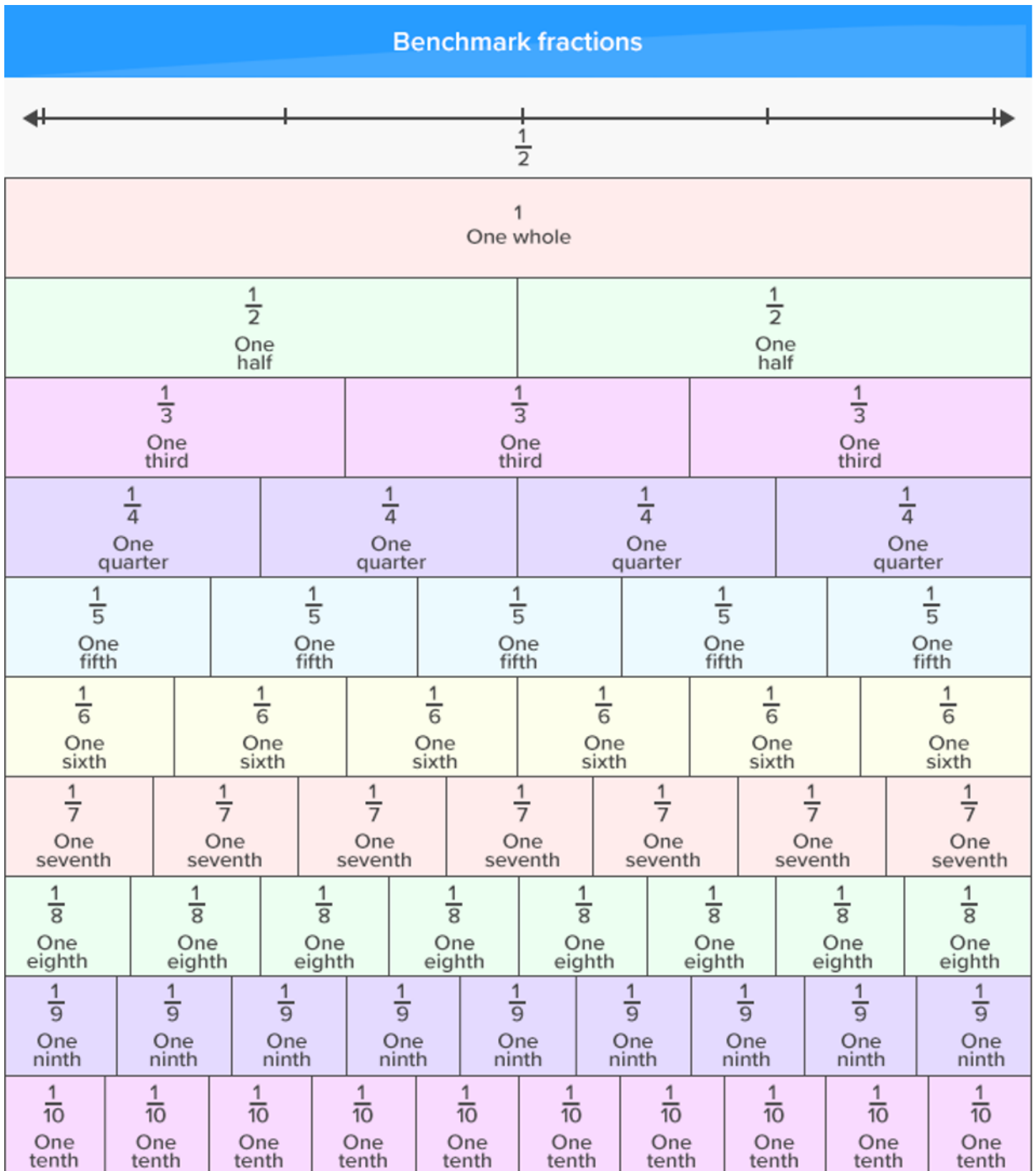https://www.teacherspayteachers.com/Product/Benchmark-Fractions-Bundle-4395187

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{5}{6}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{1}{8}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{2}{9}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{10}{12}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{9}{11}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{3}{6}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{5}{12}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{0}{4}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{4}{7}$$

Q: Is the fraction below closest to 0, 1/2, or 1?

$$\frac{6}{11}$$

Benchmark fractions

$$\frac{1}{2}$$

1 One whole

$\frac{1}{2}$ One half	$\frac{1}{2}$ One half

$\frac{1}{3}$ One third	$\frac{1}{3}$ One third	$\frac{1}{3}$ One third

$\frac{1}{4}$ One quarter	$\frac{1}{4}$ One quarter	$\frac{1}{4}$ One quarter	$\frac{1}{4}$ One quarter

$\frac{1}{5}$ One fifth	$\frac{1}{5}$ One fifth	$\frac{1}{5}$ One fifth	$\frac{1}{5}$ One fifth	$\frac{1}{5}$ One fifth

$\frac{1}{6}$ One sixth	$\frac{1}{6}$ One sixth	$\frac{1}{6}$ One sixth	$\frac{1}{6}$ One sixth	$\frac{1}{6}$ One sixth	$\frac{1}{6}$ One sixth

$\frac{1}{7}$ One seventh	$\frac{1}{7}$ One seventh	$\frac{1}{7}$ One seventh	$\frac{1}{7}$ One seventh	$\frac{1}{7}$ One seventh	$\frac{1}{7}$ One seventh	$\frac{1}{7}$ One seventh

$\frac{1}{8}$ One eighth	$\frac{1}{8}$ One eighth	$\frac{1}{8}$ One eighth	$\frac{1}{8}$ One eighth	$\frac{1}{8}$ One eighth	$\frac{1}{8}$ One eighth	$\frac{1}{8}$ One eighth	$\frac{1}{8}$ One eighth

$\frac{1}{9}$ One ninth	$\frac{1}{9}$ One ninth	$\frac{1}{9}$ One ninth	$\frac{1}{9}$ One ninth	$\frac{1}{9}$ One ninth	$\frac{1}{9}$ One ninth	$\frac{1}{9}$ One ninth	$\frac{1}{9}$ One ninth	$\frac{1}{9}$ One ninth

$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth	$\frac{1}{10}$ One tenth

Fraction Strips

1 Whole											

$\frac{1}{2}$	$\frac{1}{2}$

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$

$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$

$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

Black Line Fraction Circles
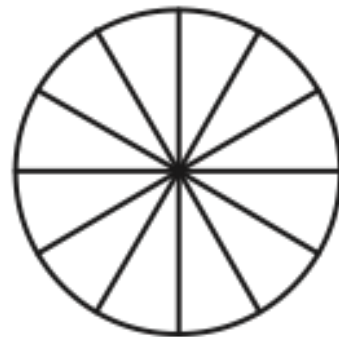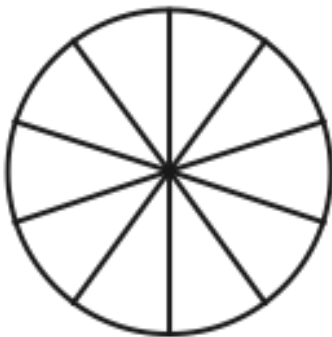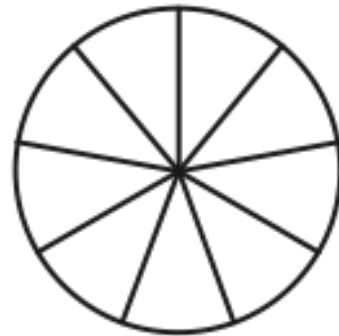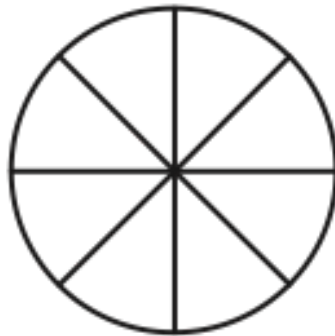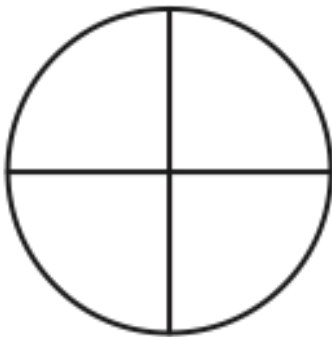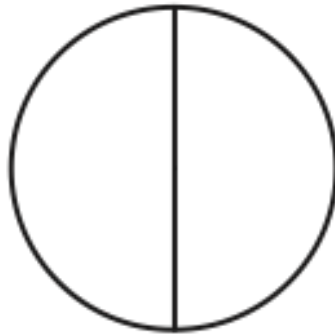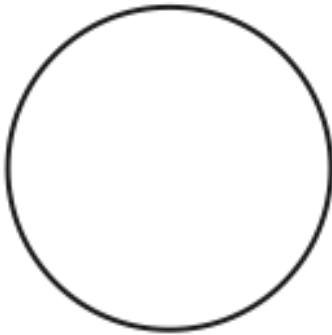
BENCHMARK FRACTIONS

fractions that you can use to compare other fractions

example: $\frac{1}{2}$
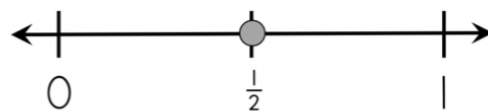
How do other fractions compare to 1/2?

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FRACTIONS EQUAL TO 1/2

Name: _____

Directions: Shade exactly one-half of each figure below. Write the numerator to complete each fraction.

1.

$\dfrac{}{2}$

2.

$\dfrac{}{4}$

3.

$\dfrac{}{6}$

4.

$\dfrac{}{8}$

5.

$\dfrac{}{10}$

6.

$\dfrac{}{12}$
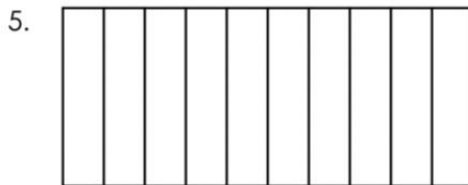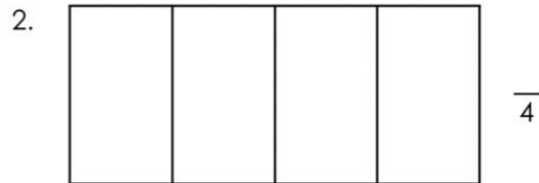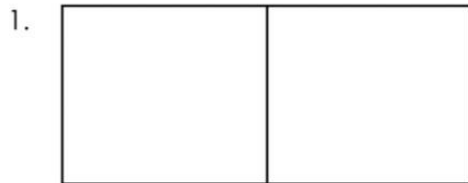
7. Each fraction above is equivalent to 1/2. What is true about each fraction?

   • The numerator is _____ *(half of* or *double)* the denominator.

   • You can divide the denominator by _____ to get the numerator.

8. What are some other fractions that are equal to 1/2? Write some examples below.

9. Lara wants to split a pizza with her brother. The pizza has been cut into 20 slices. How many slices will Lara get if they share the pizza fairly? Write your answer as a fraction.

10. Hector is at basketball practice. He made exactly half of the 14 shots he took from the 3-point line. How many 3-pointers did he make? Write your answer as a fraction.

COMPARING FRACTIONS TO 1/2

Name: _____

Directions: Shade the circle below to show the fraction 1/2. Then answer Questions 1-2.
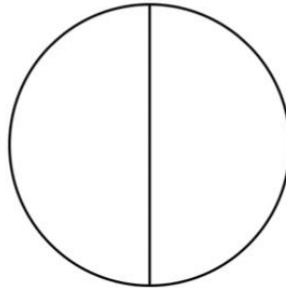
1. Shade the circle below to show 4/6.
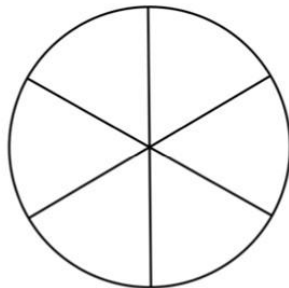
2. Shade the circle below to show 3/8.
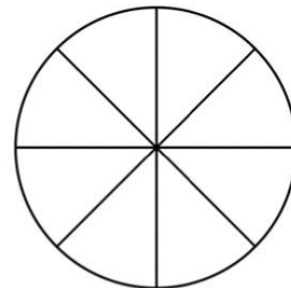
How does 4/6 compare to 1/2?
Write <, >, or = in the square.

$$\frac{4}{6} \quad \square \quad \frac{1}{2}$$

How does 3/8 compare to 1/2?
Write <, >, or = in the square.

$$\frac{3}{8} \quad \square \quad \frac{1}{2}$$

Directions: How does each fraction compare to the benchmark 1/2? Circle the correct answer.

3. $\frac{4}{12}$ is...   less than 1/2   equal to 1/2   more than 1/2

4. $\frac{7}{8}$ is...   less than 1/2   equal to 1/2   more than 1/2

Directions: Compare the pairs of fractions below by writing <, >, or = on each line.
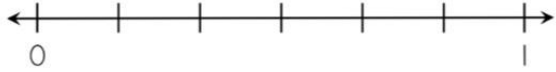
5. $\frac{1}{3}$ ____ $\frac{1}{2}$ 6. $\frac{1}{2}$ ____ $\frac{5}{10}$ 7. $\frac{1}{2}$ ____ $\frac{5}{6}$ 8. $\frac{5}{4}$ ____ $\frac{1}{2}$

BONUS: How can you use the benchmark fraction 1/2 to quickly compare 4/8 and 9/10?

FRACTIONS ON THE NUMBER LINE

Name: _____

Directions: Show where each fraction is on the number line. (You may want to label the number line first.) Is it closest to the benchmark of 0, 1/2, or 1? Check the correct column in the chart.

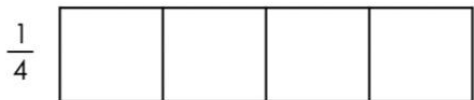| FRACTION	NUMBER LINE	0	1/2	1
$\frac{2}{4}$	0 1			
$\frac{1}{6}$	0 1			
$\frac{5}{8}$	0 1			
$\frac{4}{10}$	0 1			

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USING BENCHMARKS

Name: _____

Directions: Shade the figures below to show the fractions. Then write "less than," "greater than," or "equal to" on the blank line to compare the fractions.

1. $\frac{1}{2}$ [figure: 2-part bar]

$\frac{1}{4}$ [figure: 4-part bar]

$\frac{1}{2}$ is _____ $\frac{1}{4}$

2. $\frac{2}{5}$ [figure: 5-part bar]

$\frac{6}{10}$ [figure: 2×5 grid]

$\frac{2}{5}$ is _____ $\frac{6}{10}$

Directions: On each line, write whether the fraction is closest to 0, 1/2, or 1.

3. 6/7 _____   4. 2/12 _____   5. 3/5 _____   6. 8/10 _____

Directions: Circle the correct fraction for each question.

7. Which fraction is closest to 0?

$\frac{4}{6}$ $\frac{1}{3}$

8. Which fraction is closest to 1?

$\frac{7}{8}$ $\frac{4}{9}$

9. Which fraction is closest to 1/2, but not greater than 1/2?

$\frac{8}{12}$ $\frac{2}{5}$

10. Which fraction is closest to 1/2, but not equal to 1/2?

$\frac{2}{4}$ $\frac{7}{16}$

Directions: Use benchmark fractions to compare the fractions. Write <, >, or = in each box.

11. $\frac{9}{10}$ ☐ $\frac{1}{2}$ 12. $\frac{3}{6}$ ☐ $\frac{4}{8}$ 13. $\frac{7}{12}$ ☐ $\frac{8}{9}$ 14. $\frac{1}{5}$ ☐ $\frac{7}{6}$

Directions: Use the benchmarks of 0, 1/2, and 1 to order each set of fractions.
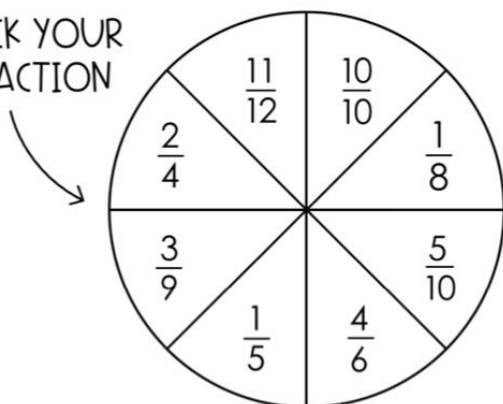
15. least to greatest $\frac{3}{6}$ $\frac{6}{8}$ $\frac{2}{10}$ _____

16. greatest to least $\frac{1}{4}$ $\frac{9}{9}$ $\frac{5}{6}$ _____

COMPARING FRACTIONS GAME

Directions: Spin the spinner one time. Write your fraction in the first row of the chart. Then, your partner takes a turn. Write the fraction he/she gets in the chart. Use benchmarks (0, 1/2, 1) to compare your fractions. Whoever has the bigger fraction wins the round! Keep playing until you complete the chart.
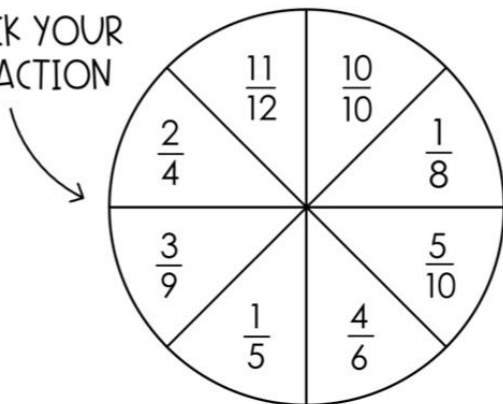
PICK YOUR FRACTION →

Spinner fractions: $\frac{11}{12}$, $\frac{10}{10}$, $\frac{2}{4}$, $\frac{1}{8}$, $\frac{3}{9}$, $\frac{5}{10}$, $\frac{1}{5}$, $\frac{4}{6}$

MY FRACTION	<, >, OR =	MY PARTNER'S FRACTION

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COMPARING FRACTIONS GAME

Spinner fractions: $\frac{11}{12}$, $\frac{10}{10}$, $\frac{2}{4}$, $\frac{1}{8}$, $\frac{3}{9}$, $\frac{5}{10}$, $\frac{1}{5}$, $\frac{4}{6}$

MY FRACTION	<, >, OR =	MY PARTNER'S FRACTION

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