



Sea Turtle Fractions

Created by the NC Aquarium at Fort Fisher Education Section

Essential Question:

How can sea turtle shells be used to review fractions?

Lesson Overview:

Students will review fractions using sea turtles as models. They will begin the review using sea urchins and fish as models. They will end the lesson by creating their own fractions using the sea turtle models.

Learning Objectives:

Students will be able to:

- Recognize equivalent fractions in a variety of visual models including circles and rectangles.

North Carolina Standards:

Third Grade:

Math:

- **3.NF.A.3:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size
 - **3.NF.A.3a:** Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
 - **3.NF.A.3b:** Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using visual fraction model.

Time Frame:

Preparation: 60 minutes

Activity: 15-25 minutes

Discussion: 5 Minutes

Materials:

- Sea turtle shell fraction pieces, enough for four to five groups of students
- Sea turtle fraction worksheet
- Pencils
- Sea animal example teacher sheet
- Markers
- Document camera, projector, whiteboard or screen



Supplemental Background Information for Teachers:

Sea turtles have flattened shells that are part of their body unlike hermit crabs which “borrow” other animal’s shells. The shell, or carapace, is made up of the turtle’s skeletal system: mostly the spine and ribs. Over the boney shell are segments made out of material similar to your finger nails called scutes. This is not true for the leatherback sea turtle; their skeleton shell is covered with a thick layer of blubber and tough skin. The scute pattern is distinctive to each species of sea turtle.

A turtle’s shell is part of its body and just as you can feel someone touch your back, a turtle can feel when something touches theirs. Many shell injuries happen to sea turtles by getting hit by boats as they come to the surface to breathe. Volunteers at local sea turtle hospitals have mentioned when they have an injured or distressed turtle, they pat them on the back gently to calm them down, much like a mother calms down a baby.

This activity will use sea turtles and other ocean animal images to help students work with equivalent fractions. Student will need to have an understanding of fractions as numbers prior to this lesson. They must understand:

- A fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts.
- A fraction a/b as the quantity formed by a parts of size $1/b$.
- What makes a balanced, equal math sentence. They should be able to explain what it means to have both sides of the math sentence equal to each other.

Preparation:

Teachers should have a set of sea turtle fraction models for each 4-5 student groups. Cut out the whole sea turtle and the shell pieces. For each shell, cut along the straight line to create a shell divided up into various pieces. The first shell should not be cut apart as it represents $1/1$, or one whole, shell. The rest of the shell represents a shell cut into halves, fourths and eighths. Copying them onto different colored paper might help keep the fraction pieces together. Laminating them will allow them to last longer.

Also make copies of the sea turtle fractions worksheet for each student. Make extra copies of the sea urchin and fish sheets for you to work with the whole class.

Activity:

1. Discuss with students what it means to have equal parts of something. Lead a discussion about fractions being parts of a whole and how fractions can be equivalent to each other.
2. Pass out the four part urchin to one of the students.
3. Using the document camera and the sea animal work sheet, review equivalent fractions. Shade one half of the two part urchin. Then ask the student with the four part urchin to make an equivalent fraction.



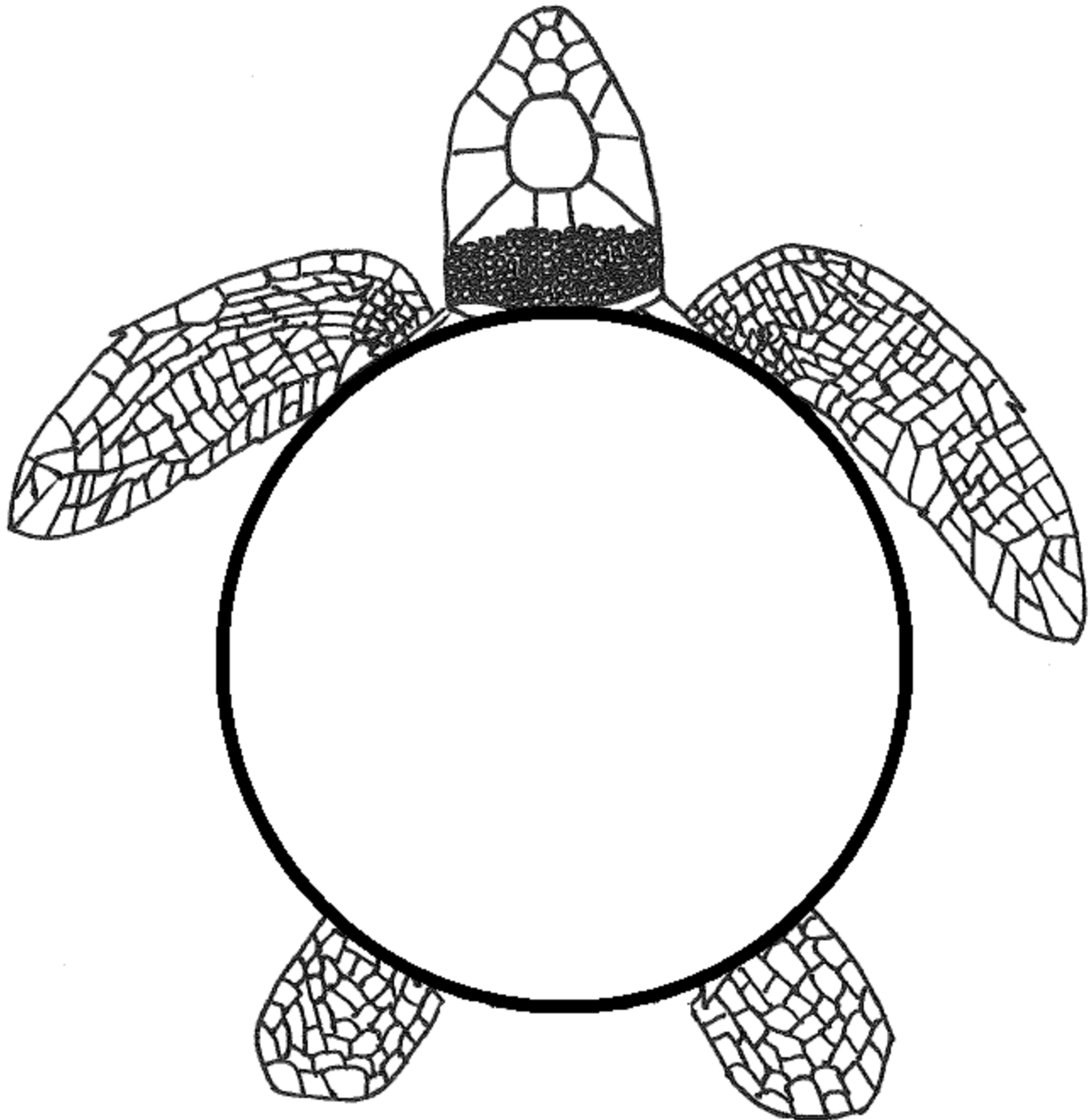
4. Do the same for the eight part urchin and discuss equivalent fractions of $\frac{3}{4}$ as well.
5. Do the same with the rectangle fish, to review equivalent fractions for $\frac{1}{3}$.
6. Next group the class into small groups of four to five students and pass out the sea turtle cut outs. Ask them to experiment in groups making equivalent fractions of the shell. Each group should have a sea turtle, a whole shell, a two-part shell, a four-part shell and an eight-part shell. Ask them to make equivalent fractions with the pieces.
7. Finally go back to whole class and pass out the worksheet. Read the directions out loud: "In the first column, write the fraction in the box for the shaded part of the turtle. Next, shade each turtle in the second column so they show the equivalent or equal fraction. Then write the equivalent fraction underneath the turtle in the boxes. Have each student work on the sheet independently.
8. When the class is finished, review the worksheet.

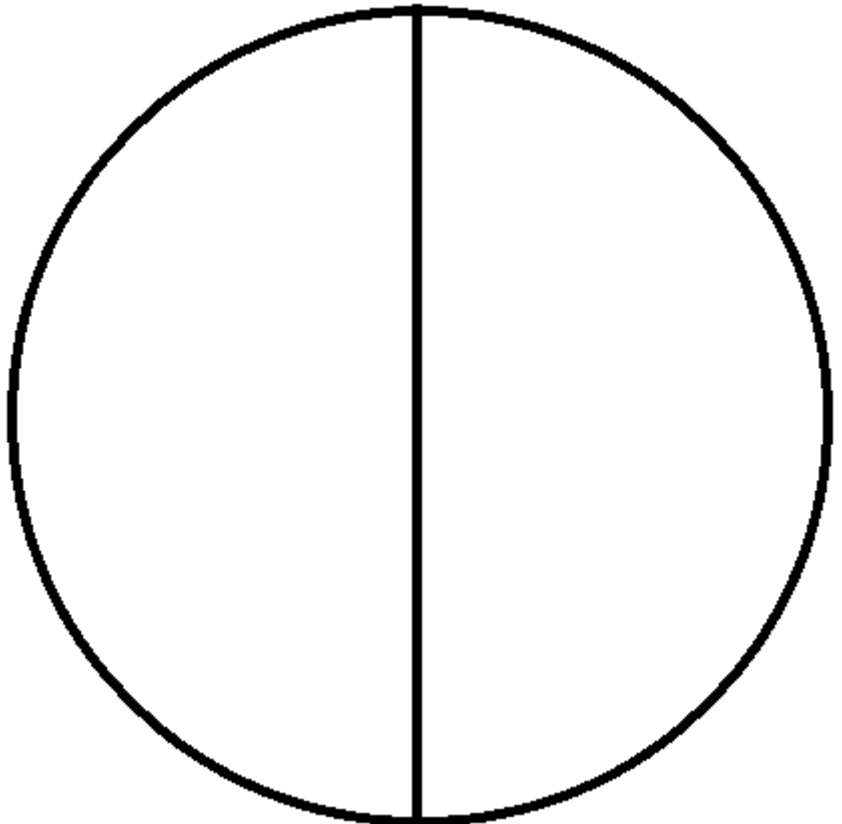
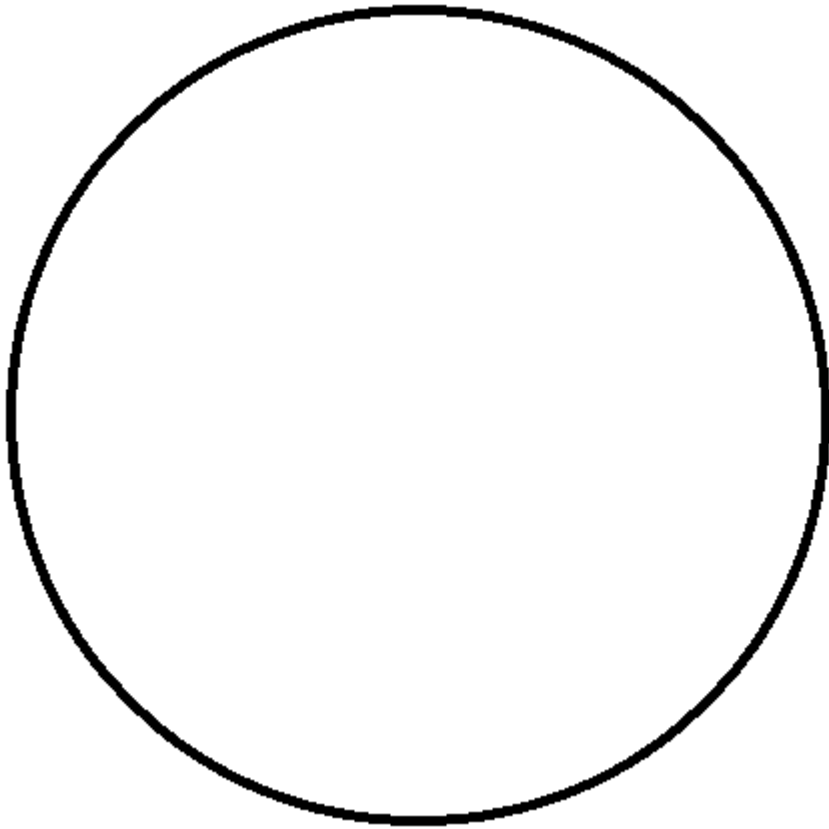
Extension Activity:

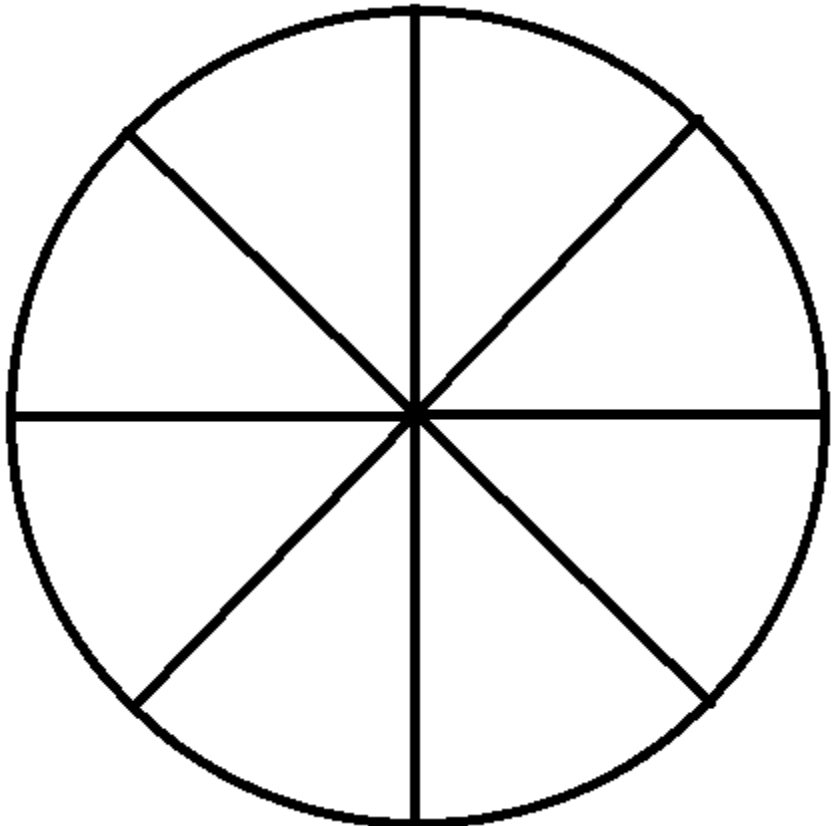
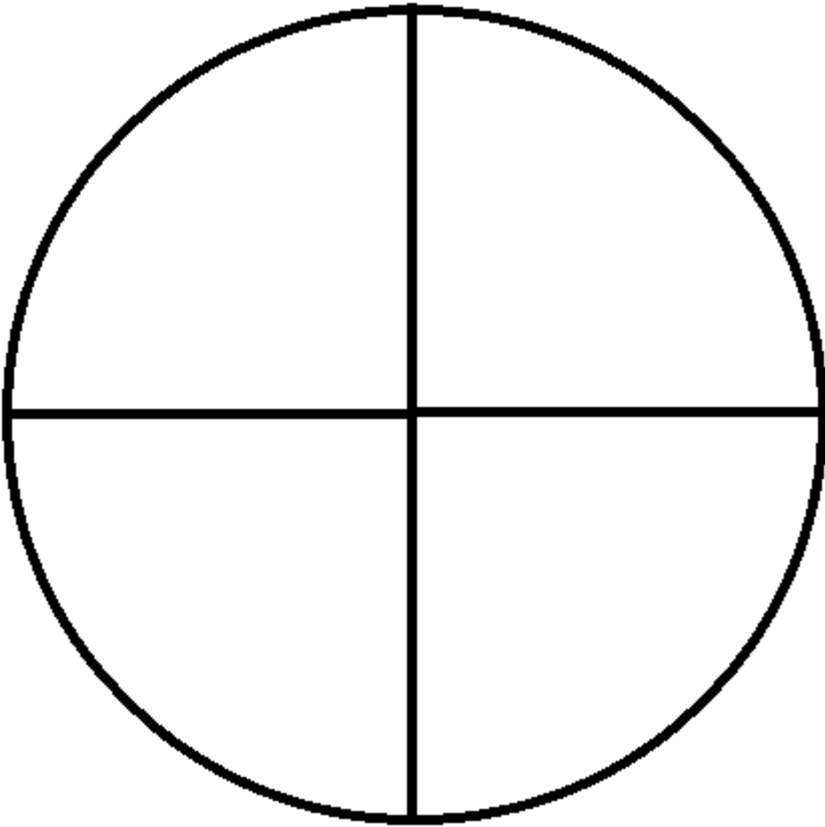
1. A final review would be to bring the students back into their groups and pass out the sea turtle manipulatives again.
2. Assign a shell fraction to each group for them to create, for example, make one group one half and another one eighth, and so on.
3. Go around the room and discuss how each group could come up with equivalent fractions. Following our example, the one eighth group would need $\frac{4}{8}$ of a shell to be equivalent to the one half group.



Sea Turtle Model

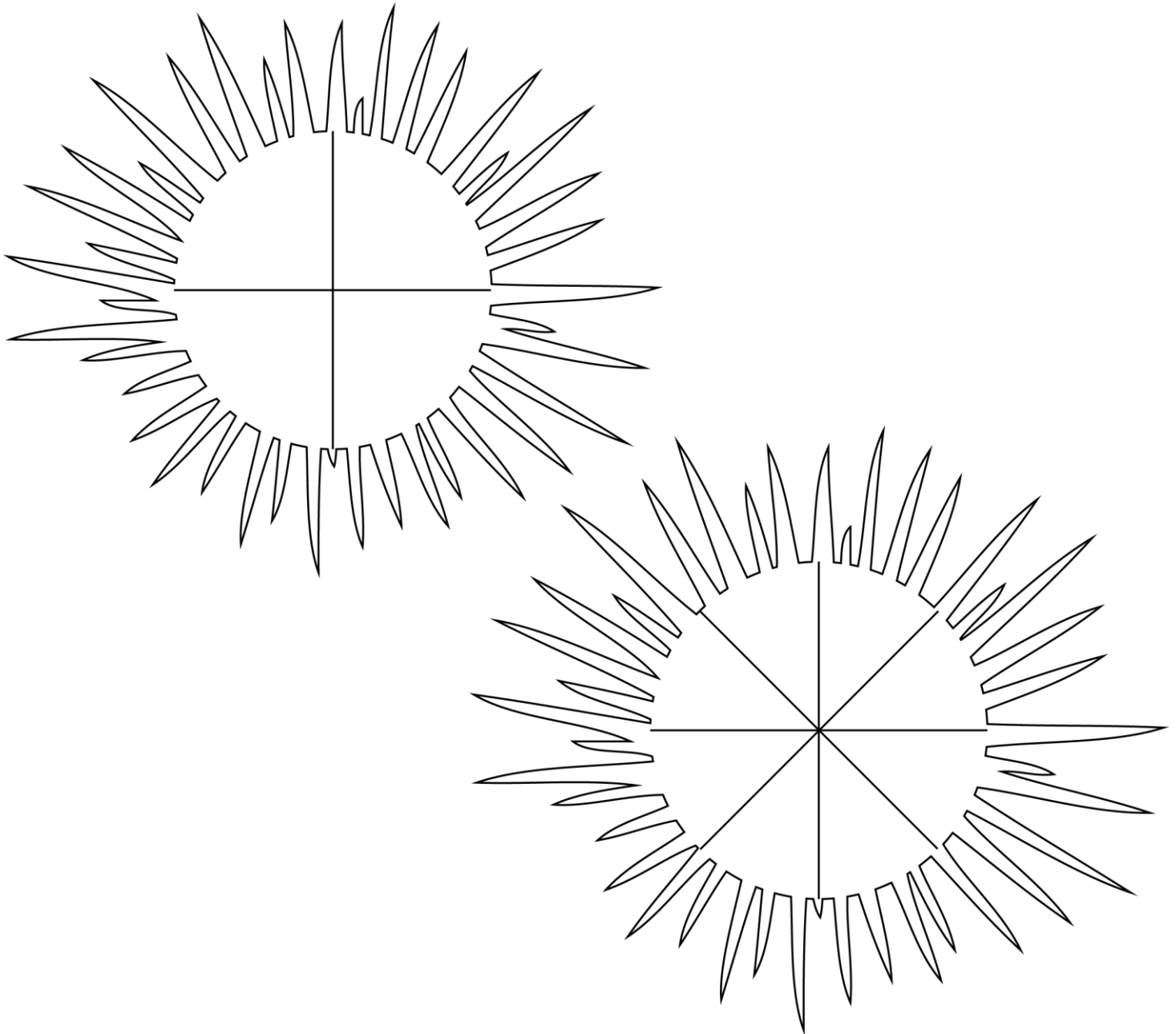








Sea Urchin Fraction Models





Fish Fraction Models

