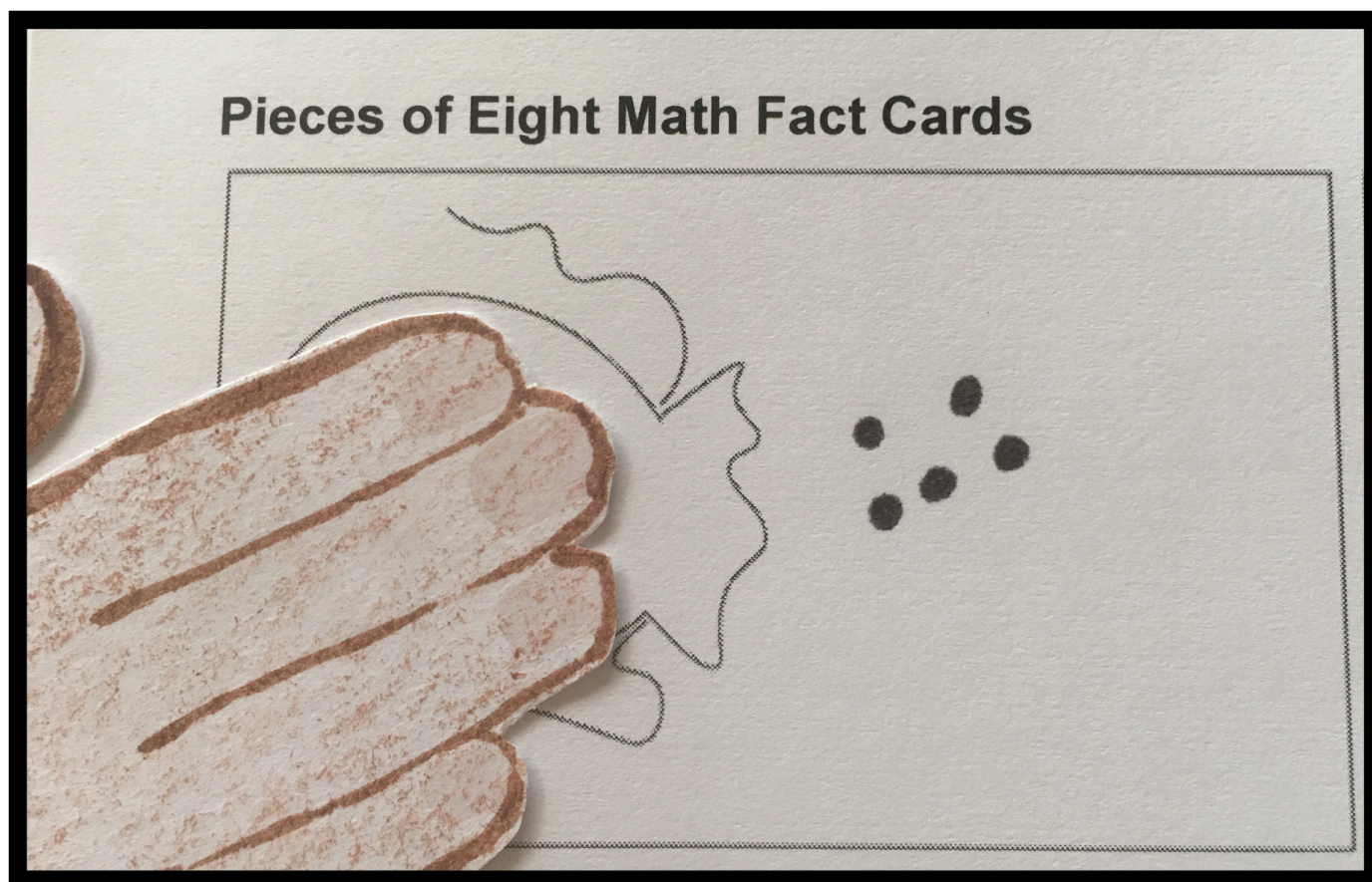
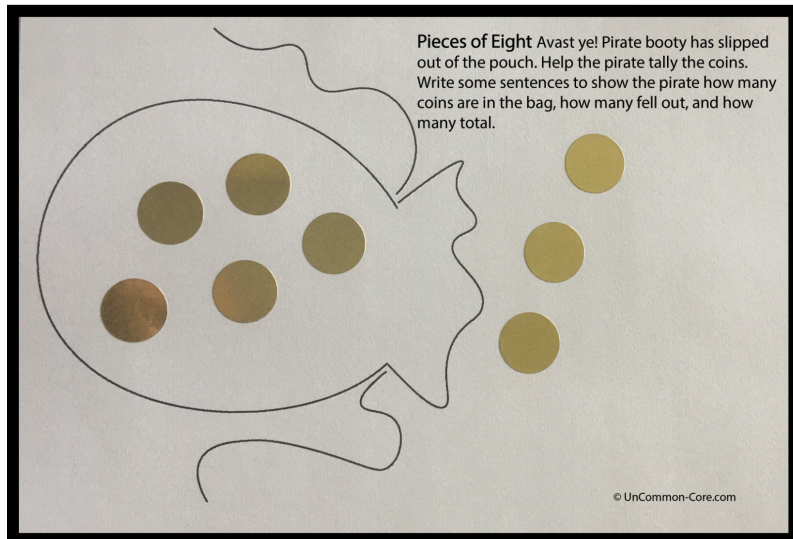


Pieces of Eight

A Pirate Game that helps your students
Learn Number Bonds that Make Eight



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Pieces of Eight

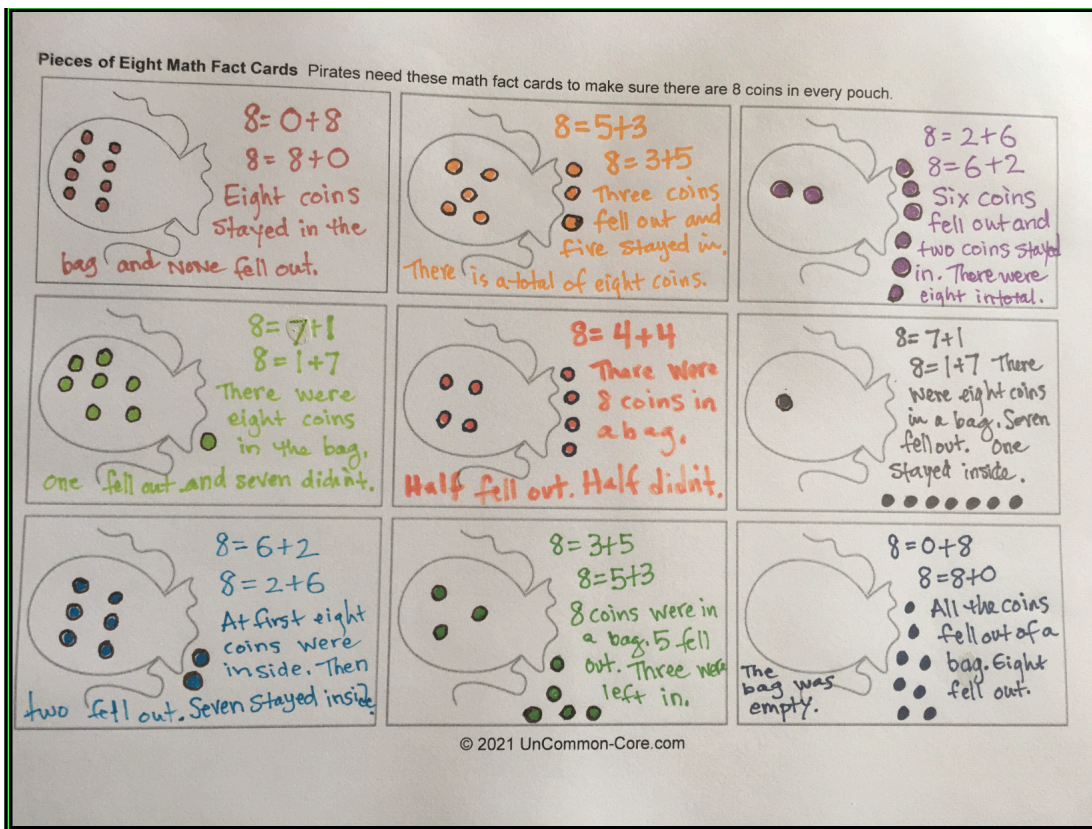
Pirate booty is kept safe in soft, drawstring bags. Each bag holds eight coins, no more, no less. Unfortunately, it is very difficult for pirates to handle bags of coins on the high seas when each wave rocks their ship. Every time coins slip out the pirates must make sure none have been lost.

Playing math with your students uses [incidental learning](#) to help your students recall the number bonds that make up eight.

Pieces of Eight focuses exclusively on decomposing and recomposing the number eight. In depth practice with eight will give your students confidence while they become familiar with the process and the thinking required to decompose numbers. Your students' expertise in recalling number bond that add up to eight will transfer to other numbers, too.

Academic standards and learning goals: Bring academic standards into the math lesson as usual. If you are following this example, identify the standards used by your school or district concerning decomposing numbers. Write learning goals according to the format used in your school. For example: "I can find all the number bonds for 8," or "I can combine two numbers to make 8," or even, "I can decompose the number 8." Use academic vocabulary recommended by your school and familiar to your students. Post and share the learning goals for the lesson.

Materials: **Pieces of Eight** can be played with only your imagination, a pirate accent, and stuff you already have in your classroom. If you want your students to keep a written record of their work, you will need paper and pencils. Find some 'treasures' to count; pebbles, coins, or paper clips, and a bag to hold them. Help your crew set the scene by donning imaginary swashbuckler hats, plumes, extremely quiet shoulder parrots, and perhaps sing a whispered sea shanty or two. It is the perfect day to wear gold hoop earrings and striped pants.

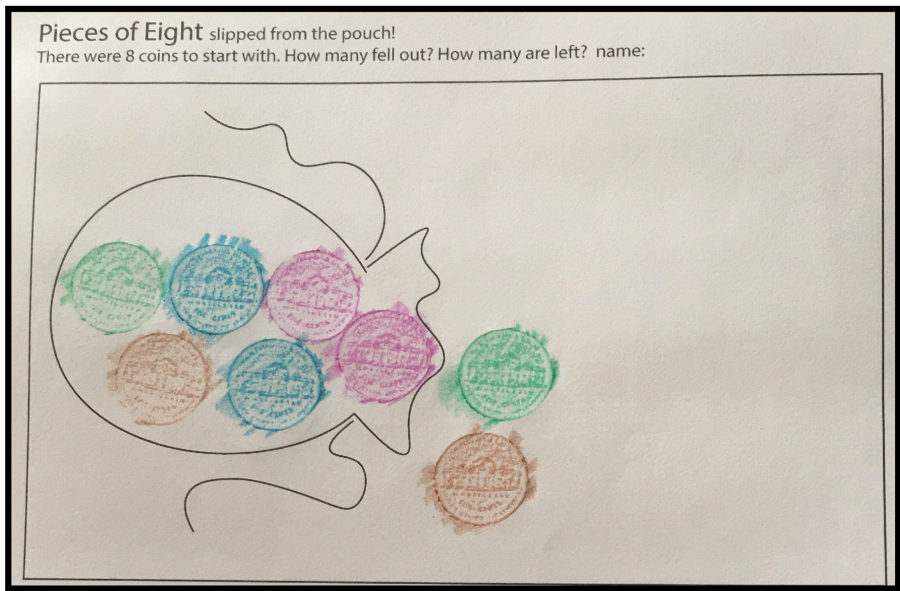


If you want to collect a few props, here are some items to look out for: treasures to count such as [pieces of eight](#), a velvet bag, [drawstring pouch](#), or treasure holder of some sort. You might want to get some simple costumes such as [eye patches](#) flipped up, of course, so that savvy pirates can see out of both eyes. Be mindful of how these will be shared or cleaned. If your students enjoy this game you may want to invest in a class set which can be sent home with a bag of treasure at the end of the year. Send a wish list to caregivers after Halloween just in case families have any leftover pirate gear.

Prepare at least one bag of eight coins to use in your math group. Make the task easier by starting out with a transparent bag or plastic baggie. This allows everyone to see the amount left inside after the pirate ‘spills’ the coins onto the table. You might also consider finding some circular gold stickers to use at the end of the lesson with the pirate pouch printable handout.

Print and copy Pieces of Eight handouts for your crew. You could make two sided copies on regular printer paper or make single sided copies on card stock. Single sided copies on stiff paper could be used to collect and display all possible number bonds that add up to eight. Students could sort their ‘cards’ into various arrangements to help them make sure they have a complete set.

Have crayons, markers, pencils, and [gold stickers](#) at the ready. If you have some actual pirate coins handy, then you could use them to make rubbings onto the **Pieces of Eight** handout instead of using stickers or drawings. Of course some pennies or dimes would do just as well, plus connect the activity with counting money.



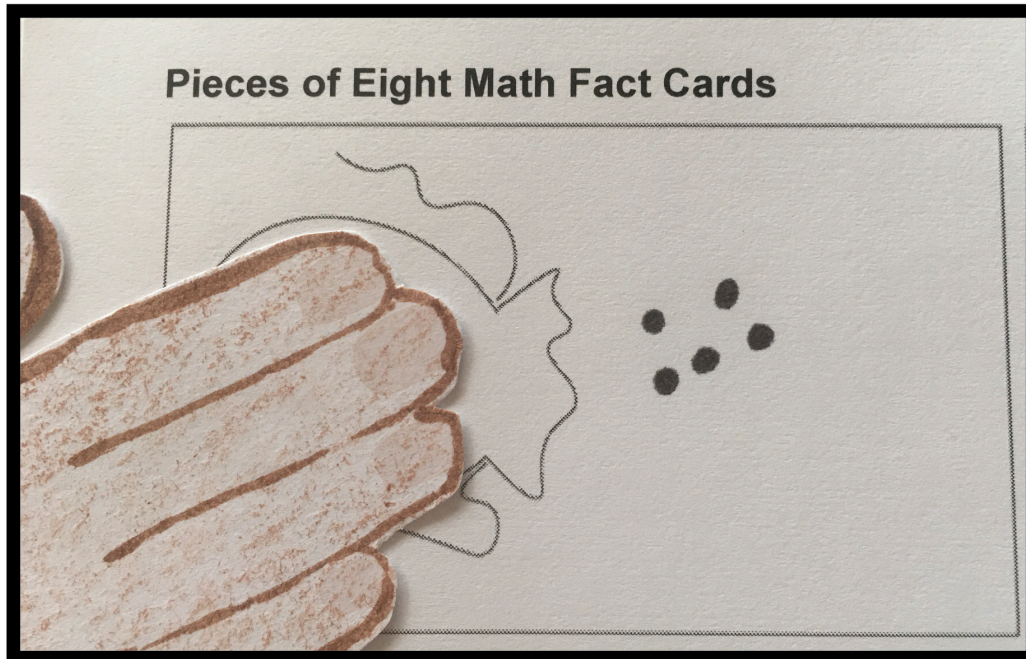
PLAY

It was a dark and stormy night . . . Gather your math group as usual, with bag in hand, lean in, speaking in a conspiratorial pirate whisper. “Avast, me hearties! I be yer pirate captain.” Of course the teacher is always the captain. “I have invited you to my cabin so we can count our pirate treasure in private - away from prying eyes if you get my drift. This bag has eight coins inside. Oh! Our ship is rocking gently on the waves today.” Sway gently from side to side, let your crew sway gently, too. “I hope no coins spill out of this bag. Arrrg!” Let seven coins fall from the bag. “Look sharp. How many coins have fallen out?” Let a crew member count. Let the others show if they agree or not. “Thumbs up for ‘yes,’ down for ‘no,’ in the middle for ‘I don’t know.’ Ah - seven coins fell out!”

Demonstrate how you want students to keep track of various ways to decompose eight by marking your demonstration paper/display. Or save this for later in the lesson. Make a ‘pirate thinking’ face. Keep swaying with the waves if you want to or gradually stop - captain’s choice. “Hmmmmm. So, we started with eight pirate coins in the bag, seven fell out, show on your fingers how many are left in the bag.” At this point you could even have each crew member feel the single coin left in the bag or verify that there is only one if needed. Show them how to mark that on their papers. “Now, I’ll put the other coins back inside. Let’s count, starting with the one in the bag.” Put your hand on the bag and say, “one,” then continue counting as you slowly drop coins back into the bag. “Eight! Yo ho ho!”

Let a different number of coins ‘accidentally’ slip out. “Arrg! We have to make sure all eight coins are present and accounted for!”

Prompt your math group to calculate the number of coins left in the bag, write the number bond on their sheets using the correct format and then - saying the number in the bag first - count the ‘spilled’ coins back into the bag. Give students time to draw the bag and any coins spilled out on the table. Next to the picture, have your students write both number sentences and English sentences. This will help students conceptualize the connections between the images, language, and math.



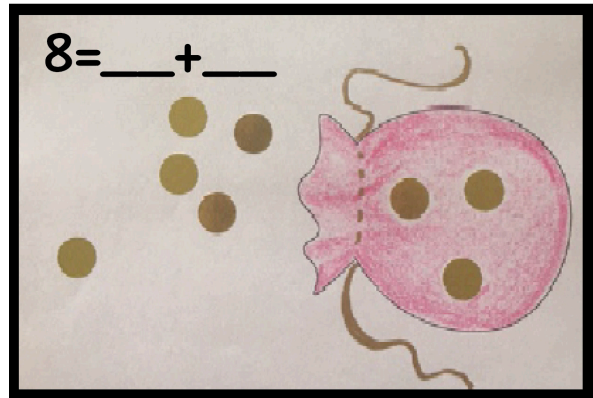
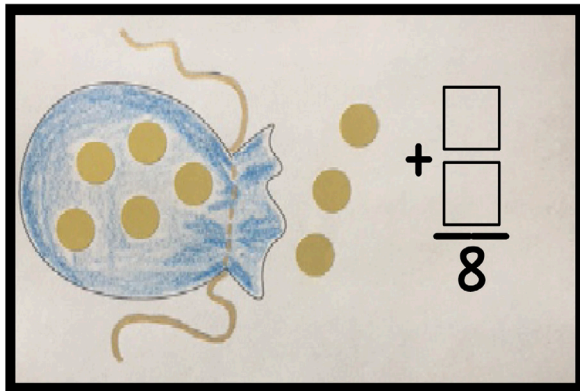
Practice: At this point, you might want to have your math group continue working together or in pairs in order to benefit from the support of a peer as they investigate number bonds. Eventually, when they understand what to do, and are more confident, send them back to their desks with the **Pieces of Eight** handout and instructions on how to complete it. Possibilities include making rubbings of one coin eight times, using stickers, or having students draw in the coins.

More! Extensions and Alternatives

After writing down all the pairs of numbers that make eight, your crew could use the same story and materials to show how three or more numbers can be combined to make eight. This is easy to do by having the coins slip out of the bag and land in two groups.

What if it turns out that there are pirates in the distant seas who keep different amounts of coins in their swag bags!?! Let your students use the story and materials to decompose numbers other than eight. You may want to set up a display of all the number bonds discovered by your math crew.

Pieces of Eight can be used to practice “counting on” by having only one, two, or three coins fall from the bag. Place hands on the bag and say the number inside, then count on to make sure there are still eight coins. To get students out of the habit of counting the coins inside the bag, have them write the number on the bag rather than drawing the coins.



If you had your students create a complete set of **Piece of Eight** math fact cards, kids can use them to review their number bonds. This time, instead of drawing the coins that didn't fall out, have your students leave the bag blank. Then, based on the number of coins that fell out and knowing that there are always eight coins in a bag, your students can calculate the missing number.

Multiplication and Division

Pieces of Eight is also a great way to introduce multiplication and division. Bring out several bags of eight and have your crew calculate the number of coins in each group of bags. Let them doodle some illustrations to show how they skip counted to eight.

After a hot day digging on a desert island, your crew returns to the ship with a bunch of coins. You count the coins up on deck where you don't have to light a lamp to see. It turns out there are 56 coins in all. One of the crew will get sent to the captain's cabin to fetch some empty bags to fill with coins. The only question is - how many bags will they need for 56 coins?

Fractions

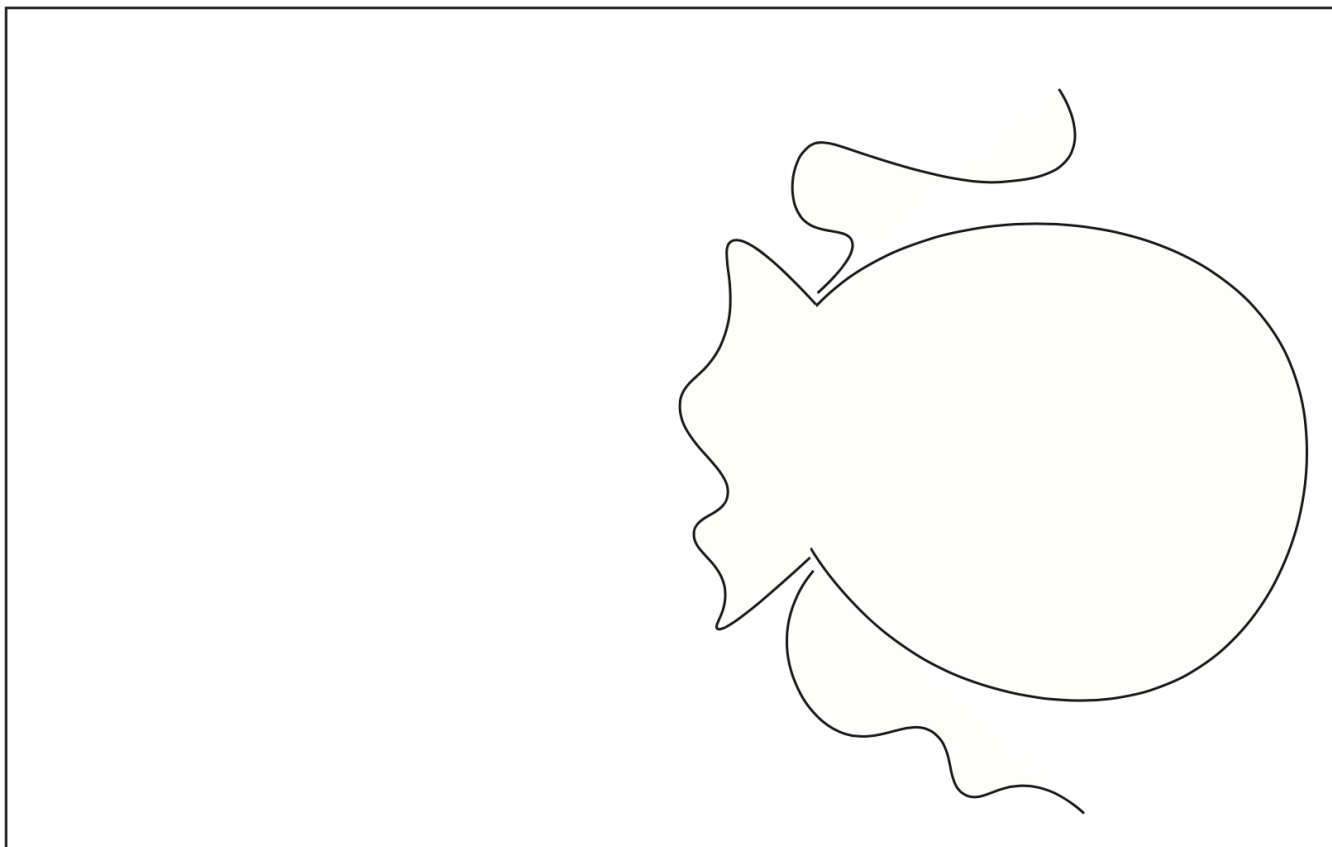
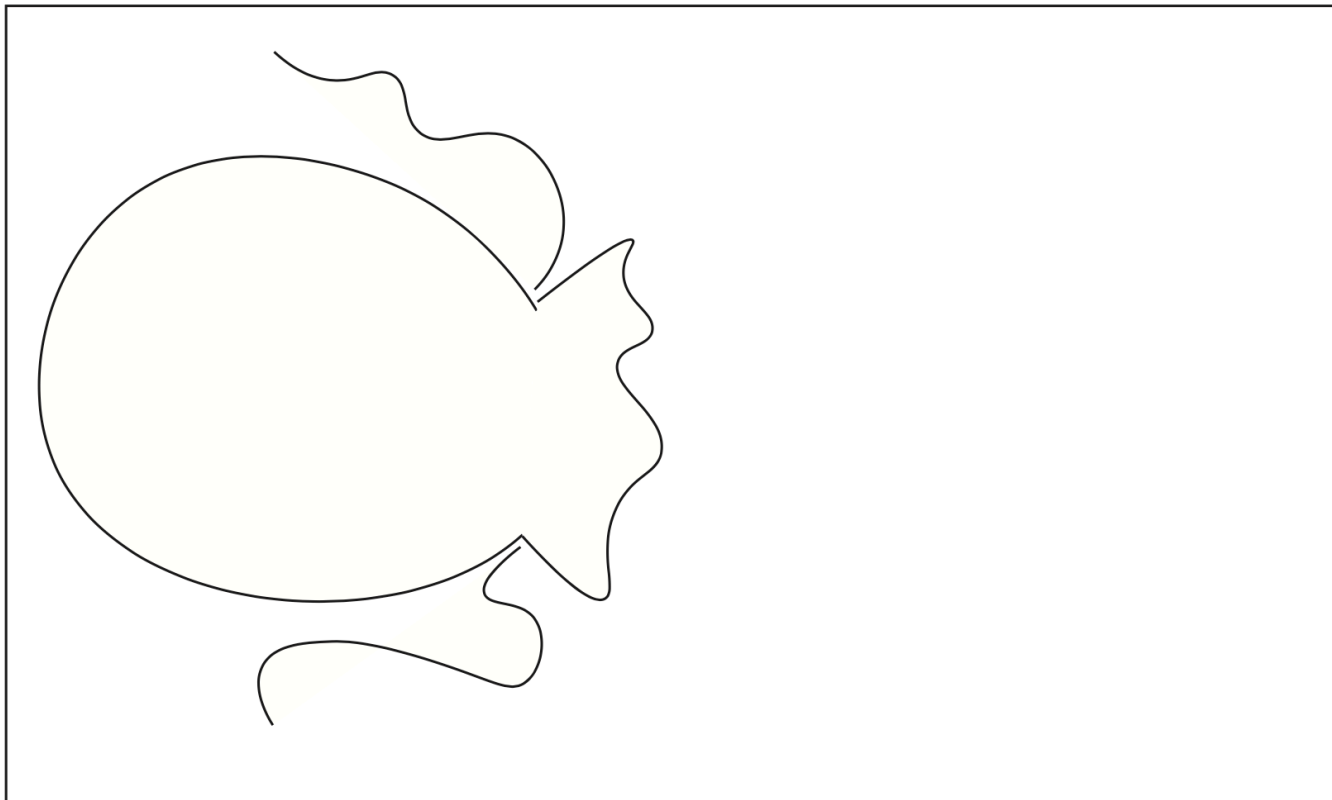
Bring back the pirate theme when your class studies fractions. Practice the same game except this time have your students explain the answers in fractions of eight. Again have them draw pictures and write sentences to explain their answers.

Once your students learn how to play **Pieces of Eight** they might want to know more about pirates in general - add fiction and nonfiction stories to your class library so students can study up on pirate lore. They may like to learn about the history of real pieces of eight, or write their own pirate adventures.

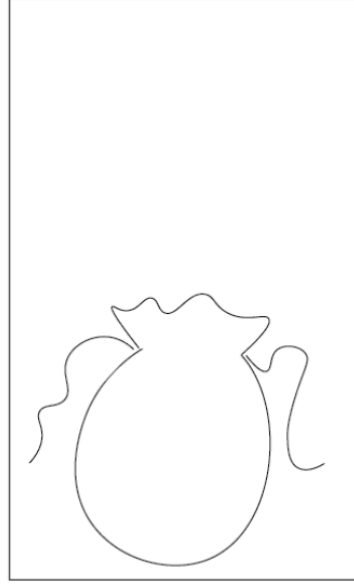
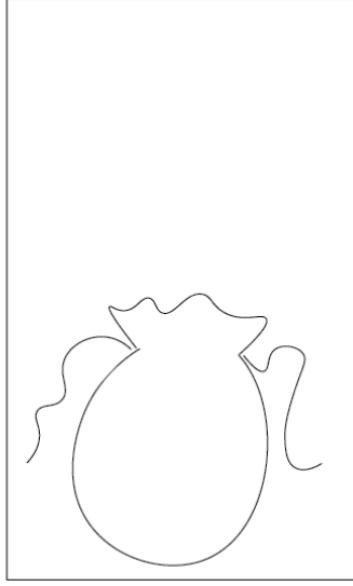
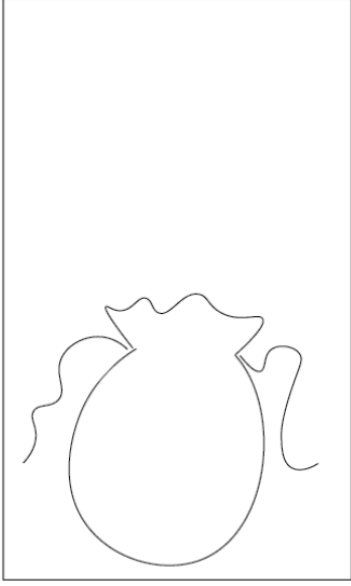
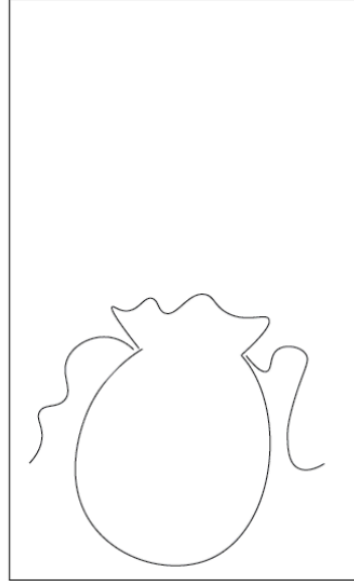
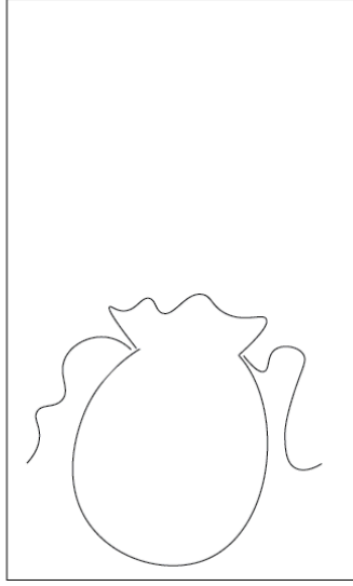
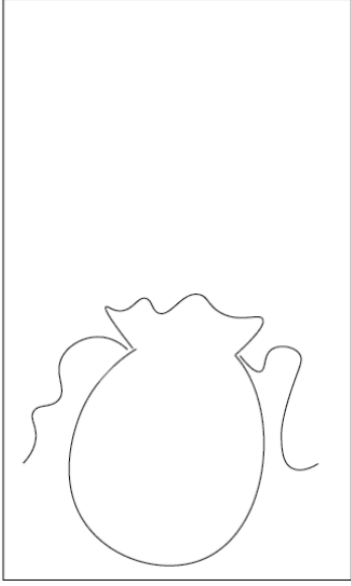
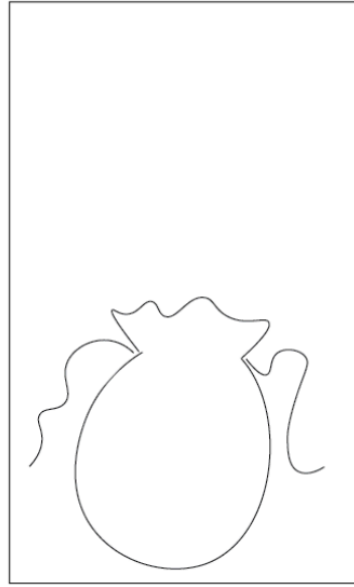
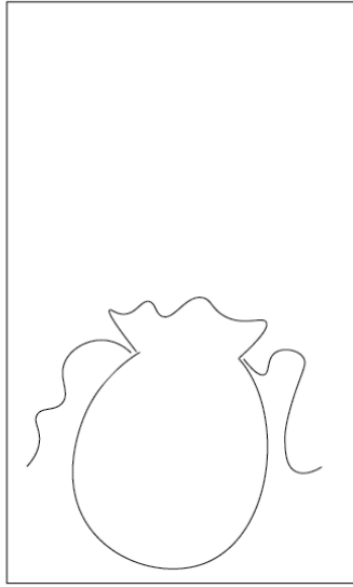
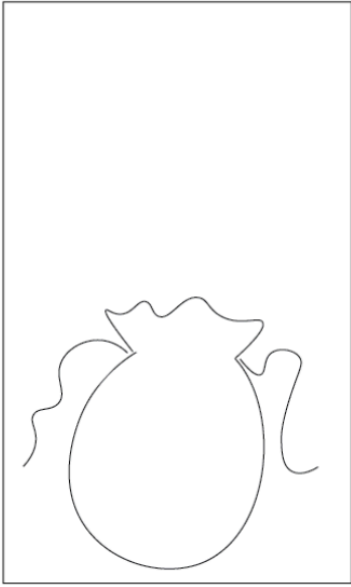
Enjoy!

Pieces of Eight slipped from the pouch!

There were 8 coins to start with. How many fell out? How many are left? name:



Pieces of Eight Math Fact Cards Show which of 8 coins are in the bag & which fell out. Cut out the cardst. Write math facts & your initials on the back.



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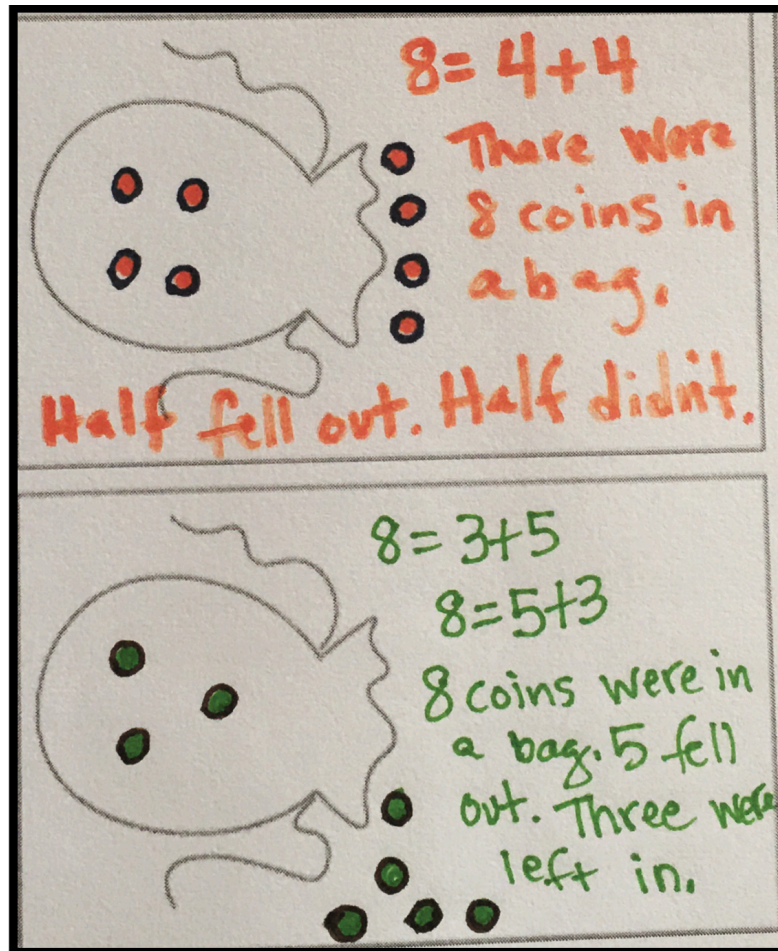
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