

How Much Is A Ten-Thousandth?

Objective: Students will see the value of one Ten-Thousandth when compared to other decimal values. Have them sketch the cake as it is continuously cut into smaller pieces and write both the words and the symbols for their answers on these.

Birthday Party: Tell students they have been invited to a birthday party. They will be sharing a cake with the other guests. The paper cake (attached) will be helping them visualize what their share of the cake will look like.

Give each student the paper divided into tenths (below). Tell them this is a picture of the cake. Students should take out a paper to sketch and record their findings.

1. If only one person is at the party, they will get 1 whole cake. On their recording paper, have them write "1 (cake) \div 1(divided among 1 person) = 1 whole cake."
2. If ten people attend the party, each person will get $1 \div 10$. Have them fold their paper in half vertically, then into 5 equal sections to get a picture of each person's share. On one of the sections have them write 0.1 and on their recording paper, have them write "1 (cake) \div 10(divided among 10 people) = 0.1 of the whole cake."
3. If 100 people attend the party, each person will get $.1 \div 10$. Discuss what that might look like for the paper cake. Have them cut out one of the tenths and fold that to get 10 equal parts in order to get a picture of each person's share. On one of the sections have them write 0.01 and on their recording paper, have them write "0.1 (cake) \div 10 = 0.01 of the whole cake for each person."
4. If 1000 people attend the party, each person will get $.01 \div 10$. Discuss what that might look like for the paper cake. Have them cut out one of the hundredths and fold that to get 10 equal parts in order to get a picture of each person's share. On one of the sections have them write 0.001 and on their recording paper, have them write ".01 (cake) \div 10 = 0.001 of a whole cake for each person."
5. If 10,000 people attend the party, each person will get $.001 \div 10$. Discuss what that might look like for the paper cake. Have them cut out one of the thousandths and fold that to get 10 equal parts in order to get a picture of each person's share. Have them write ".001 (cake) \div 10 = 0.0001 of a whole cake for each person."
6. If 100,000 people attend the party, each person will get $.0001 \div 10$. Discuss what that might look like for the paper cake. Have them cut out one of the ten-thousandths and fold that to get 10 equal parts in order to get a picture of each person's share. Have them write ".0001 (cake) \div 10 = 0.00001 of a whole cake for each person."
7. Challenge them to cut out a millionth of the cake. Write " $0.00001 \div 10 = 0.000001$ of a whole cake for each person."

