

THE NUMBERS SHOW

starring

ZERO and The Digits

Episode 6 Learning Guide

Special Guests: e and 4

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1. Make a prediction: Why is 'e' a guest on The Numbers Show?
2. 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 are all of the what?
3. What other numbers do you know that are represented by a letter or symbol?
4. Why is 'e' called Euler's number?
5. Why should 'e' be celebrated on the 7th of February in the US? What's the connection? Why is this different in other countries?
6. How are 'e' and 0 related through the equation (Euler's identity)?
7. How can a number be imaginary? Do some research to find the answer.
8. Who do you see at the picnic in the ad for 'e's' furniture workshop? Why do you think these guests were invited?
9. What do you think 'foreshadowed' means?
10. What is DNA? What can it tell us?
11. How many different ways can you represent the number four? Draw, write, or use objects to show four in as many ways as you can.
12. CHALLENGE: Compete with a friend to see who can come up with more ways to show four!
13. What does it mean when 4 says "0, you are the demarcation!" Look at 4's family tree. What does the white line represent? Why does it separate the bottom from the top of the family tree?
14. What else do we measure by 60?
15. CHALLENGE: If there are 60 minutes in an hour and 24 hours in a day, how many minutes are there in a day?
16. In Roman numerals, I represents 1, V represents 5, and X represents 10. To count with Roman numerals, another I is placed to the right of what you already have: II is 2, III is 3. But when you get to 4, the Romans simplified the number by using a little subtraction. Explain how IV represents 4.
17. CHALLENGE: What is 9 in Roman numerals?

18. What is an ancestor?
19. RESEARCH: Ask your family where your ancestors are from.
20. Do you like the 4 with goalposts, or with a triangle top? Why?
21. Can you figure out the pattern: 2, 4, 8, 16, ____, ____, 128? Fill in the blanks!
22. Play along with 'e' and 0! How many animals with four legs can you think of in 15 seconds?
23. Can you think of any animals with 4 of something other than legs?
24. How many legs do the animals in the ad for the pet adoption event have?
25. Do you have any pets? How many legs do your pets have altogether? If you don't have a pet, how many legs does your dream pet have?
26. You try it: How many colors do you need to color in a map of the continent you live on so that no two countries that touch are the same color?
27. Pick 4 places you would like to visit. Write the name of each one in a different color and hang it up to remind you!
28. Why do you think 0 wrote a thank-you note to towns for having a good place to put a square?
Hint: What's the connection between 4 and a square?
29. How many shapes can you name with 4 sides?
30. CHALLENGE: Each shape that has 4 sides also has 4 what?
31. Make a prediction: why will Pi, π , be a guest on The Numbers Show if he is not one of the digits?

