Odd and Even Discussion

0. *Mrs Holden:* So, two hundred fifteen, Kim, is what type of number, even or odd?

1. *Kim:* Um, even.

2. *Mrs Holden:* Why?

3. *Kim:* Because there’s a two.

4. *Mrs Holden:* Okay, so two hundred fifteen is an even number. Dan?

5. *Dan:* Um, two hundred fifteen divided by two is, if you divided it, it would be an answer and it will have a remainder of one.

6. *Mrs Holden:* So are you saying that this umber would have a remainder of one if we divided it by two?

7. *Dan:* Yes. It is odd because it has a remainder.

8. *Mrs Holden:* So is two hundred fifteen even or odd, Dan?

9. *Dan:* Odd

10. *Mrs Holden:* Brian, do you agree or disagree with what Dan said, and why?

11. *Brian:* I agree, but it’s also because the last number is odd.

12. *Mrs Holden:* Rita, what do you think of these ideas?

13. *Rita:* If the ones, the ones digit, if it’s as odd, it, the number is going to be an odd number because it’s the first number that is important.

14. *Mrs Holden:* I’m a little confused. First number? Last number? [*A five-second pause*]

15. *Rita:* The ones digit has to be odd for the number to be odd.

16. *Kim:* But how can you tell if a number is odd?

17. *Rita:* All you have to do is look at the ones digit and if the ones digit is odd, it’s going to have to be odd. The other numbers don’t matter.

18. *Mrs Holden:* Kim, would you repeat what Rita said?

19. *Kim:* Um, you know that if you look at the last number and it’s odd, then the whole number is odd.

20. *Mrs Holden:* Which number is the last number?

21. *Kim:* Five

22. *Mrs Holden:* Which place is it in?

23. *Kim:* The ones.

24. *Mrs Holden:* OK, so why is the ones digit the important one? Talk to your partner for a minute.

Mrs Holden walks around the room listening while pairs of students sort this out. After about a minute, she calls on one pair.

25. *Mrs Holden:* Carlos. Tell us what you and your partner discussed.

26. *Carlos:* Well, if the last place, hm… the ones is a one, three, five, seven or nine, the number is odd. We aren’t sure why.

27. *Mrs Holden:* Carlos and Amy have noticed that only odd digits can be in the ones place, but they aren’t sure why. Who has an idea about why we only have to look at the ones place?

28. *Kayla:* I think the ones digit is important because it means – when you divide, that’s where the leftovers come from. The remainders are always from the ones.

The discussion continued, with many students questioning why the digits in the other places do not matter.

29. *Rachel:* Look, if it is two hundred forty-five (245), think about it. Two hundred can – is divided evenly into two groups, four tens can be divided into twenty and twenty, but five will have a remainder.

30. *Arjun:* But what about one hundred ninety-five?

31. *Kayla:* Take each place. One hundred can be divided by 2 evenly. So can 90. But five ones give two remainder one.