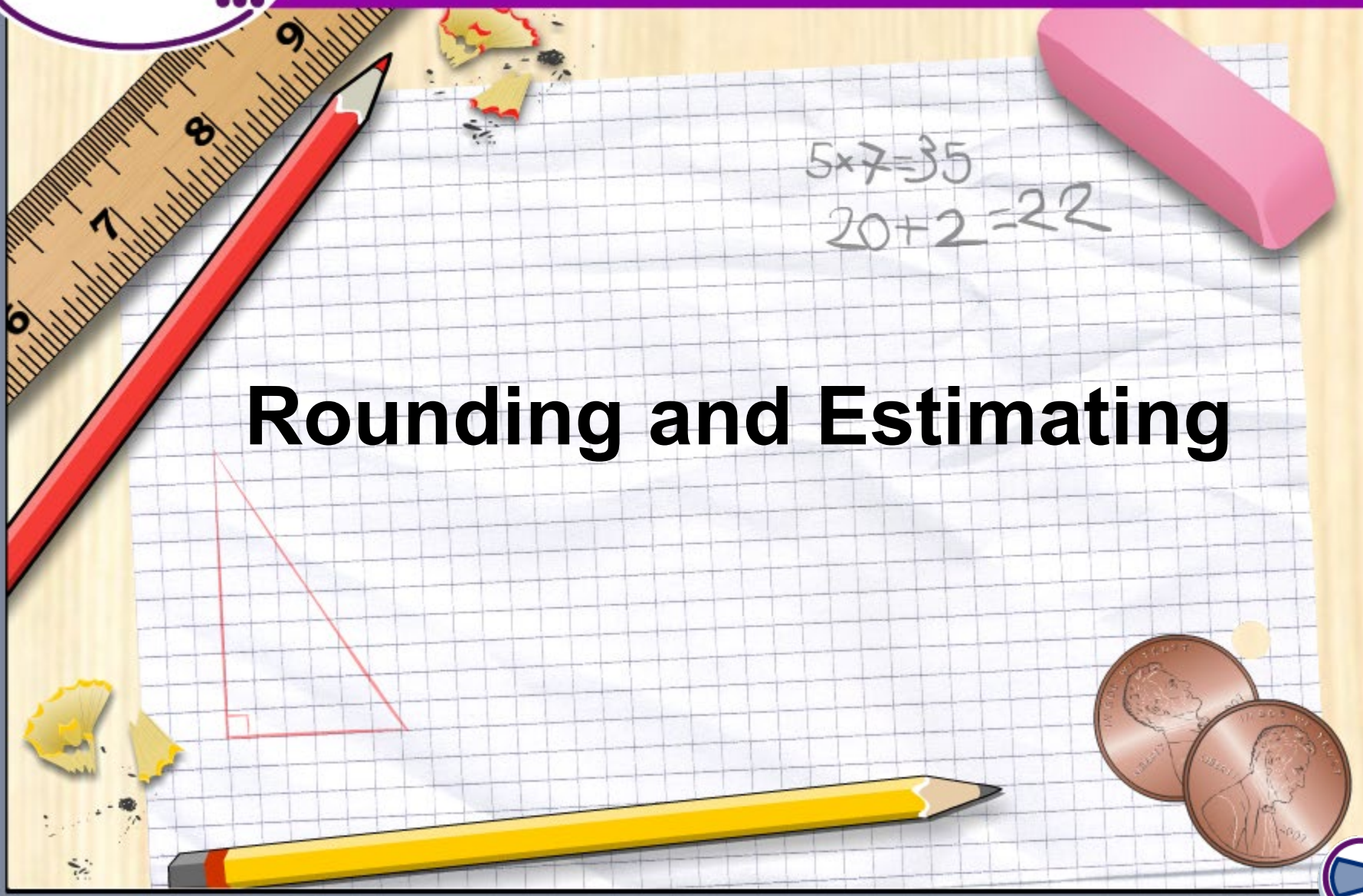
Rounding and Estimating



Information

Common core icons

This icon indicates a slide where the Standards for Mathematical Practice are being developed. Details of these are given in the Notes field.

Slides containing examples of mathematical modeling are marked with this stamp.

This icon indicates an opportunity for discussion or group work.

The **Standards for Mathematical Practice** outlined in the Common Core State Standards for Mathematics describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These are:

1) Make sense of problems and persevere in solving them.

2) Reason abstractly and quantitatively.

3) Construct viable arguments and critique the reasoning of others.

4) Model with mathematics.

5) Use appropriate tools strategically.

6) Attend to precision.

7) Look for and make use of structure.

8) Look for and express regularity in repeated reasoning.

This icon indicates that the slide contains activities created in Flash. These activities are not editable.

This icon indicates teacher's notes in the Notes field.

David's cars

How many toy cars does David have?

Do you agree with David?

Introducing rounding

David can say that he has almost ten cars because 8 is close to 10.

1	2	3	4	5	6	7	8	9	10

This is called **rounding**.

Rounding helps us to count easily in tens and hundreds.

How many monkeys?

Let's investigate rounding.

How many monkeys can you see?
Press each monkey to count it.

Press **start** to begin.

start

Round up or round down?

How do we know whether to **round up** or **round down**? Let's investigate.

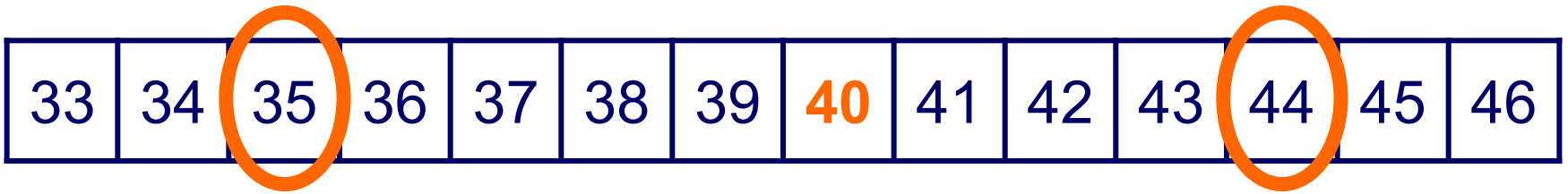
Press the highlighted numbers at the bottom of the screen to answer each question.

Press **start** to begin.

start

Smallest and largest

What are the **smallest** and **largest** numbers that you could round to **40**?



There is always a difference of **9** between the smallest and largest number.

smallest number	rounded number	largest number
	80	
	50	
	20	

Can you complete this table?

Rounding hundreds

How would you round this number to the nearest hundred?

628

Round up or round down?

How do we know whether to **round up** or **round down** when we're rounding hundreds?

Press the highlighted numbers at the bottom of the screen to answer each question.

Press **start** to begin.

start

Rounding number line

Using rounding to calculate

As part of his homework, Alex answered the following question. Do you agree with Alex's answer?

$$748 - 153 = 428$$

This is a difficult problem! However, we can find an **approximate** answer by rounding.

748 rounds to **750** and 153 rounds to **150**.

$$750 - 150 = \mathbf{600}$$

So the **exact** answer to Alex's problem should be around 600!

Practice calculations

Can you find approximate answers to these problems?

1. 48 + 73

2. 82 – 51

3. 105 – 91

4. 148 + 131

5. 582 – 519

6. 1,390 – 985

7. 1,482 + 1,951

8. 4,988 – 2,184

Who is more accurate?

To check a calculation, Nicole likes to round to the nearest 10, and Olivia likes to round to the nearest 100.

125 + 292 = 417

Nicole's calculation: 130 + 290 = **420**

Olivia's calculation: 100 + 300 = **400**

357 – 132 = 225

Nicole's calculation: 360 – 130 = **230**

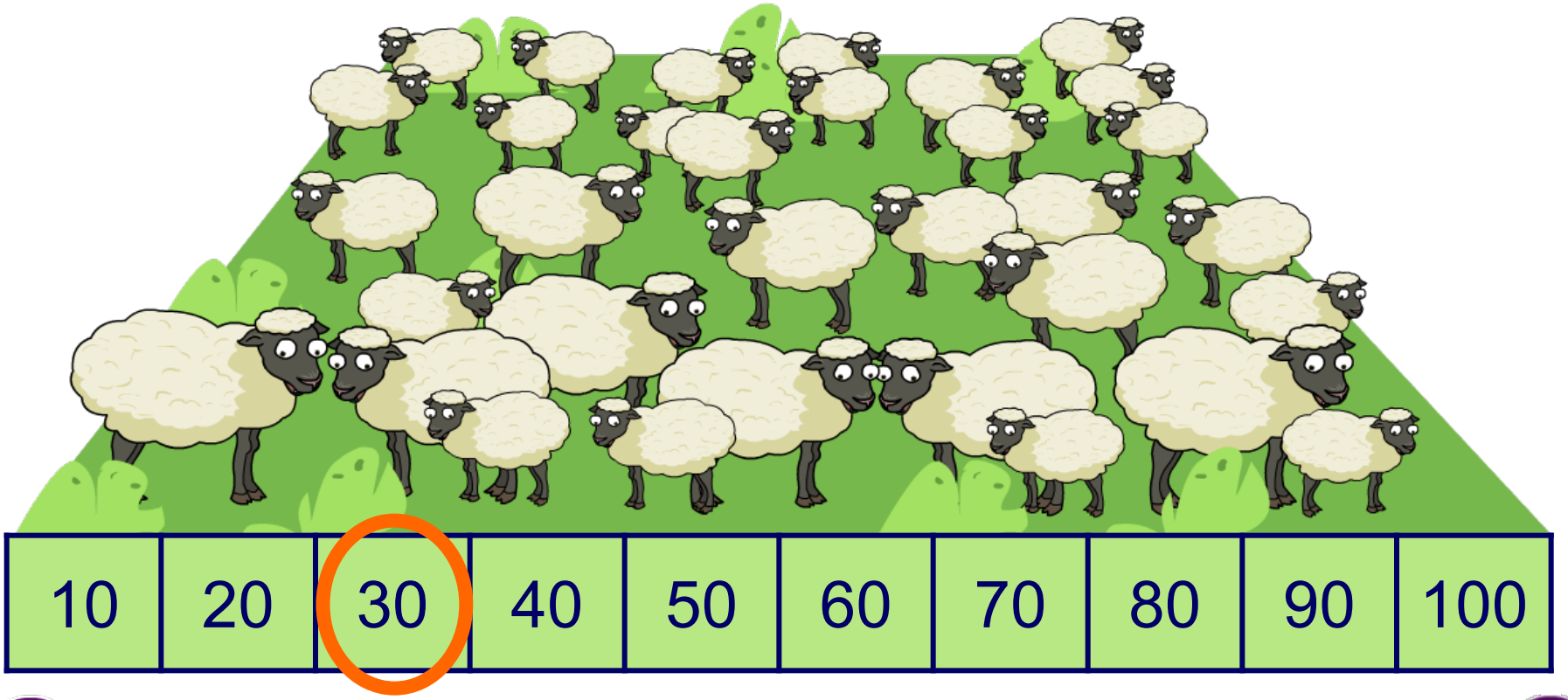
Olivia's calculation: 400 – 100 = **300**

Who is more accurate?

Introducing estimating

When we don't need an exact answer, we can **estimate** to the nearest round number.

Can you estimate the number of sheep in this field?



Estimating practice

Alex's teacher is offering a prize for the student who can give the best estimate of the number of candies in a jar.

Can you help Alex? Press the number line to estimate the number of candies to the nearest 10.

Press **start** to begin.

start

0

00

The actual number of candies is:

At the grocery store