Number Identification: Number Comparisons

New Zealand Curriculum

This lesson plan could be used to support the teaching and learning of the following Achievement Objective(s) from the New Zealand Curriculum.

Level 3: Number Knowledge

Achievement Objective: Know how many tenths, tens, hundreds and thousands in a whole number.

Whole Lesson Time

All timings are approximate.

50 mins

Student-Friendly Learning Intention:

To compare numbers to 1,000,000.

Success Criteria:

I can use < and > to compare numbers.

I can say which number is greater than or less than.

I can compare numbers to 1,000,000.

Resources:

Lesson Pack

Box - one per group, if not using the Popcorn Box Net

Assessment Resource - a success criteria marking sheet is included if you wish to assess this lesson.

Preparation:

Number Comparisons Activity Sheets (Differentiated) - one per student

Moji Maths Activity (Differentiated) - one per student

Paper Based Moji Cards - one per student

Problem-Solving Cards - as required

Key/New Words:

Place value, number, digit, greater than, less than, order, compare, partition.

Prior Learning

It will be helpful if students know how to read and write numbers to 1,000,000.

Learning Sequence

Warm-up — 10 mins

Greater Than and Less Than: Using the Lesson Presentation, students learn about the symbols greater than (>), equal to (=) and less than (<), and use these to show their understanding of numbers.

Guided Groups — 10 mins per group

★ In this group, students will use the one star Moji Maths Activity and the Paper-Based Moji Cards to organise numbers into number sentences that compare two numbers. Students will identify numbers that are greater than or less than.

★★ In this group, students will use the two star Moji Maths Activity and the Paper-Based Moji Cards to organise numbers into number sentences that compare three numbers. Students will need to look carefully at the symbols to be able to identify which numbers are greater than or less than other numbers.

★★★ In this group, students will use the three star Moji Maths Activity and the Paper-Based Moji Cards to organise numbers into number sentences that compare four numbers. Students will need to look carefully at the symbols to be able to identify which numbers are greater than or less than other numbers.

Follow-up Activities — 10 mins

★ This group will complete the one star Numbers to 1,000,000 Activity to compare numbers to each other. Students will complete questions including ones with missing digits that test their knowledge of numbers to 1,000,000. These questions ask students to find the smallest and greatest number possible to correctly complete the equation. Students are asked to complete number sentences using both digits and words.

★★ This group will complete the two star Numbers to 1,000,000 Activity to compare numbers to each other. Students will complete questions including ones with missing digits that they need to find to complete equations. These questions ask students to find the smallest and greatest number possible to correctly complete the equation. Students are asked to complete number sentences using both digits and words.

★★★ This group will complete the three star Numbers to 1,000,000 Activity to compare numbers to each other. Students will complete questions including a challenge to rearrange the digits in a number that tests their knowledge of numbers to 1,000,000. These questions lean on students problem-solving skills, these questions have a range of solutions. Encourage students to compare their answers after completing this to recognise the wide range of ways to solve these problems.

	**Independent Activity Ideas** **Roll**it: Students work in pairs and take turns to roll a four-digit, five-digit or six-digit number. Students compare their numbers using the greater than or less than symbols. **Order**it: Order and compare these numbers by identifying numbers greater than and less than using these **Flip**it: Play this fun _____ Either find the matching sets of numbers written as words and digits, or play the game as a group by identifying whether your number is higher or lower than other players.	
	**Wrap-up** **Popcorn Comparisons**: Put students into groups of three, where possible. Give each group their **Popcorn Box** filled with screwed up **Popcorn Number Cards** and the **Popcorn Symbol Cards**. Each group member takes a popcorn card. Each group should have two white cards and one yellow card. Groups assemble their cards to write number sentences.	

Extending Learning

For schools following a problem-solving approach, you may wish to extend learning with the **Problem-Solving Cards**. Alternatively, these could be used as a home learning task or introduction to another lesson.

Disclaimer/s

We hope you find the information on our website and resources useful.

Animations

This resource has been designed with animations to make it as fun and engaging as possible. To view the content in the correct formatting, please view the PowerPoint in 'slide show mode'. This takes you from desktop to presentation mode. If you view the slides out of 'slide show mode', you may find that some of the text and images overlap each other and/or are difficult to read.

To enter slide show mode, go to the **slide show menu tab** and select either **from beginning or from current slide**.

Mathematics

Number Identification

Compare Numbers to 1,000,000

Learning Intention

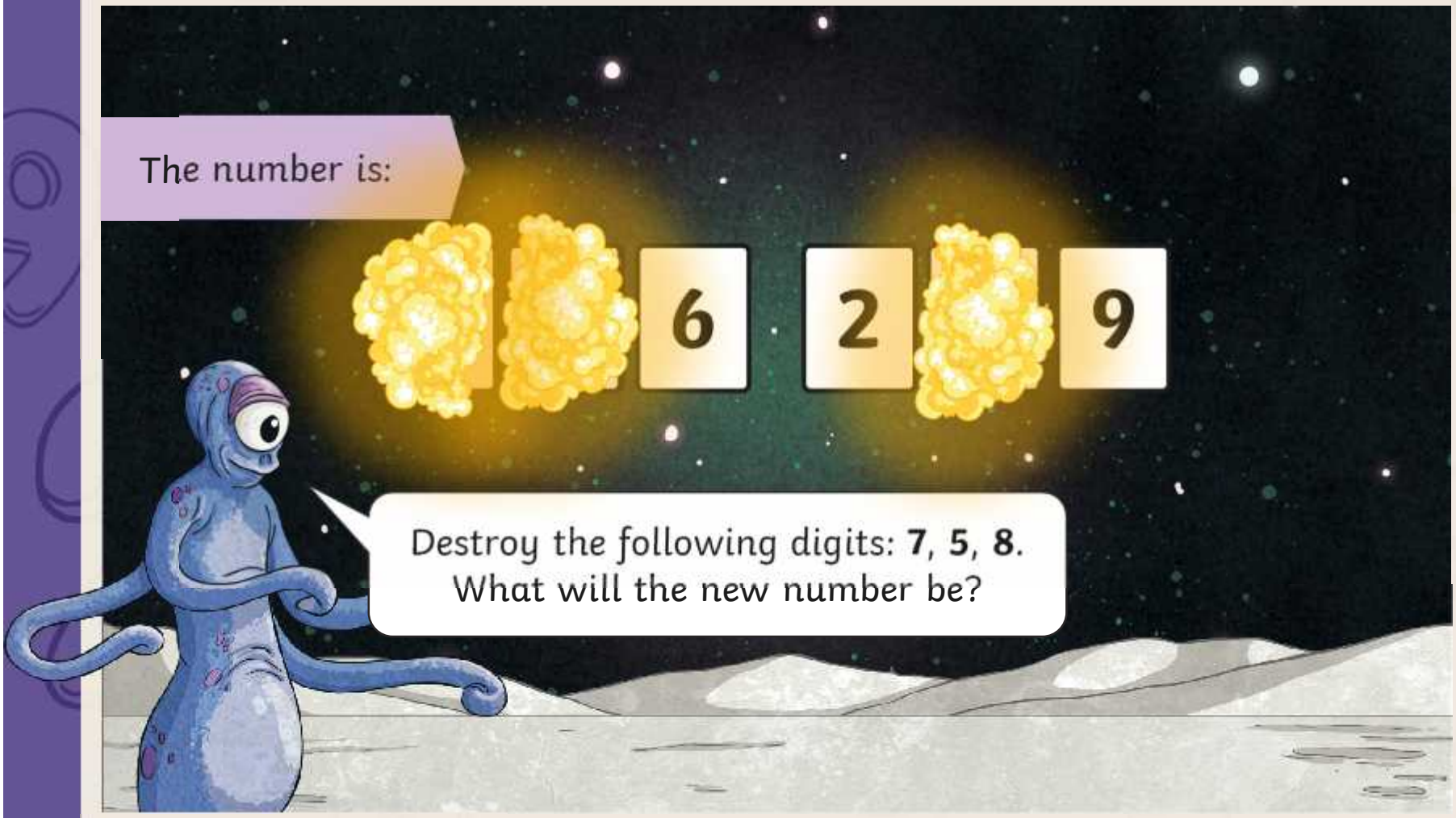
- To compare numbers 1,000,000.

Success Criteria

- I can use < and > to compare numbers.
- I can say which number is greater than or less than.
- I can compare numbers to 1,000,000.

Warm-up

Great Than and Less Than



Warm-up

Greater Than and Less Than

When we compare numbers, we make decisions about which number in a set is bigger or smaller based on the value of their digits.

We can use the greater than and less than symbols to show how we have compared two or more numbers. We can also use the equals symbol to show when two numbers are the same.

Can you recall what the greater than and less than symbols look like?

>	<
Greater than	Less than
25 > 16	16 < 25

=

Equal to

25 = 25 16 = 16

Warm-up

Greater Than and Less Than

Select the correct symbol from the choices below for each statement.

34,921	>	34,129

<	=	>
less than	equal	greater than

Warm-up

Greater Than and Less Than

Select the correct symbol from the choices below for each statement.

99,999	<	111,111

<	=	>
less than	equal	greater than

Warm-up

Greater Than and Less Than

Select the correct symbol from the choices below for each statement.

410,081	<	500,010	<	500,081

< less than	= equal	> greater than

< less than	= equal	> greater than

Wrap-up

Greater Than and Less Than

Work in groups of three to practise using the greater than and less than symbols.

In your popcorn box, you have different types of popcorn. The yellow popcorn pieces contain the symbols whereas the white popcorn pieces contain the numbers.

Each member of the group should take a piece of popcorn – there should be one yellow and two white pieces between you.

Wrap-up

Greater Than and Less Than

Organise your numbers and your symbol to make a true number sentence.

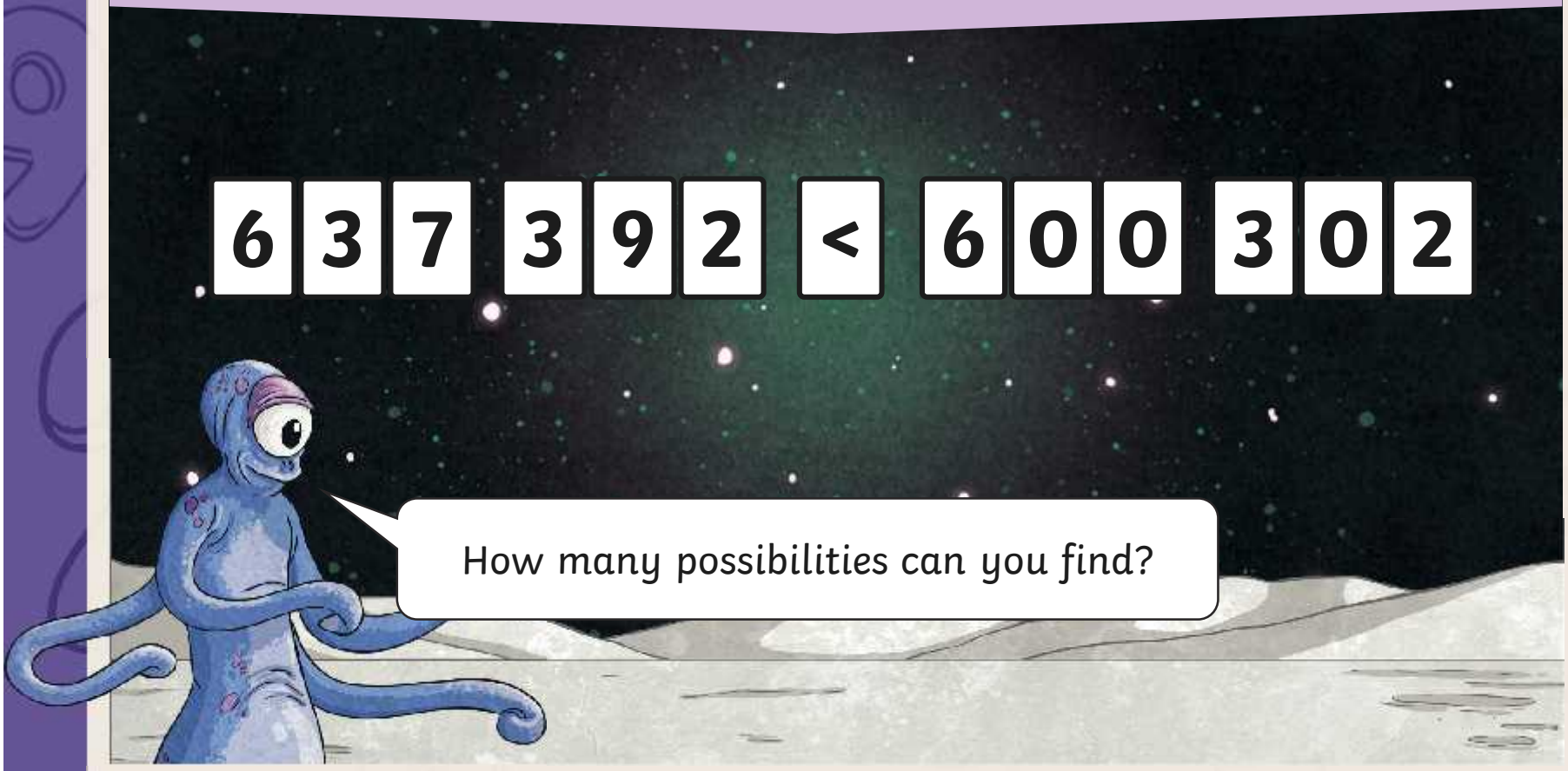
Then take three more pieces of popcorn and have another go!

How many true number sentences can you create using your popcorn?

Wrap-up

Great Than and Less Than

Which digits of the first number need to be destroyed to make the statement true?



Learning Intention

- To compare numbers 1,000,000.

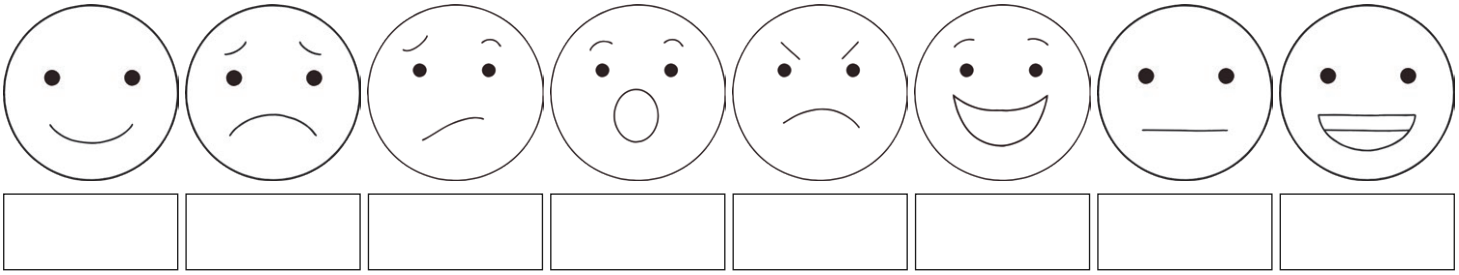
Success Criteria

- I can use < and > to compare numbers.
- I can say which number is greater than or less than.
- I can compare numbers to 1,000,000.

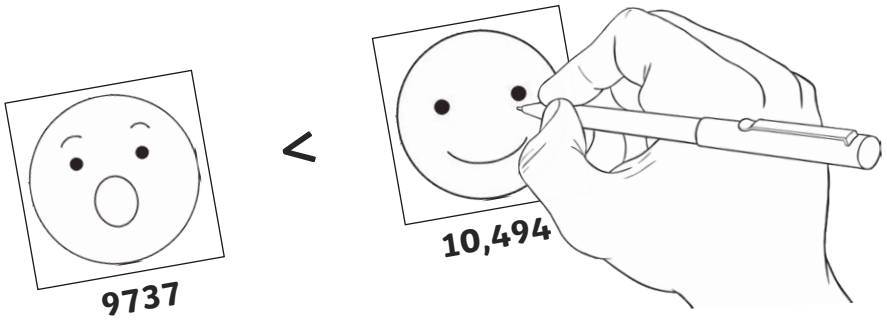
Moji Maths

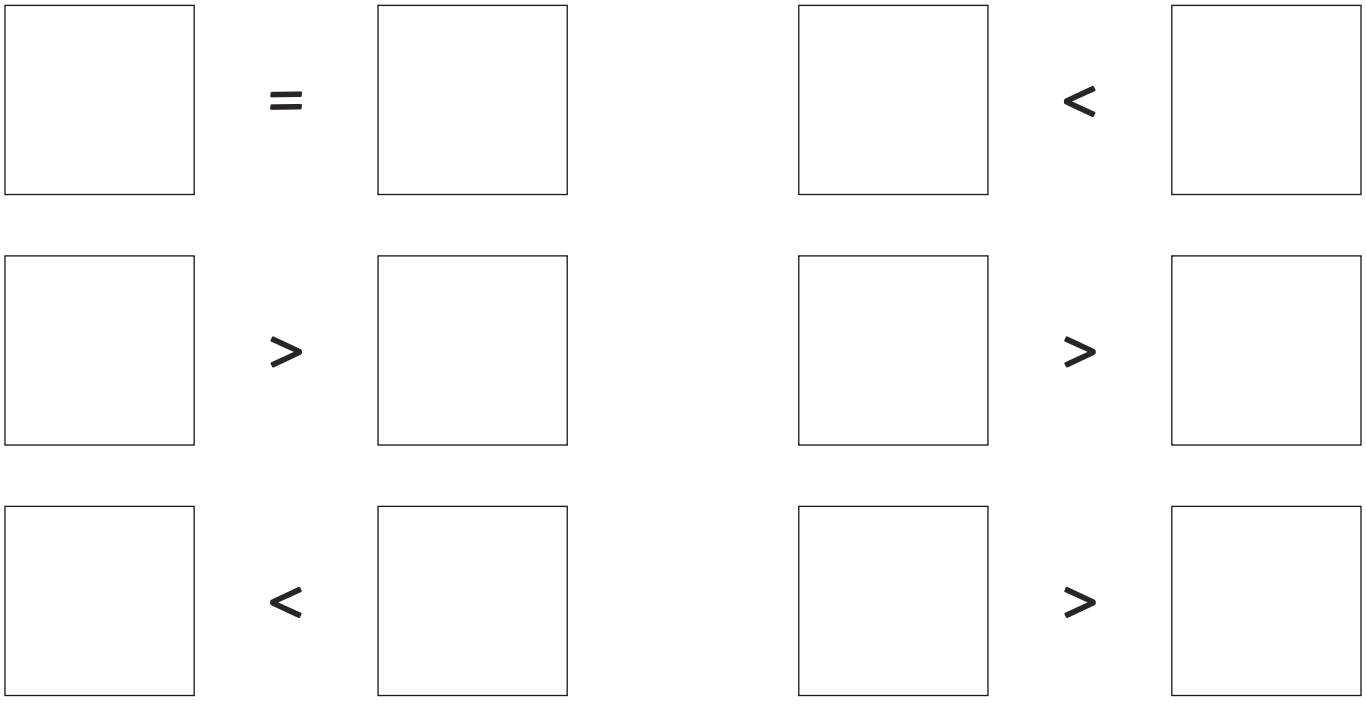
To compare numbers to 1,000,000.

Write a 5-digit or 6-digit value into each box below the emojis.



Use the completed key to fill in the missing mojis from the comparison sentences.
Each comparison sentence must be different. E.g.

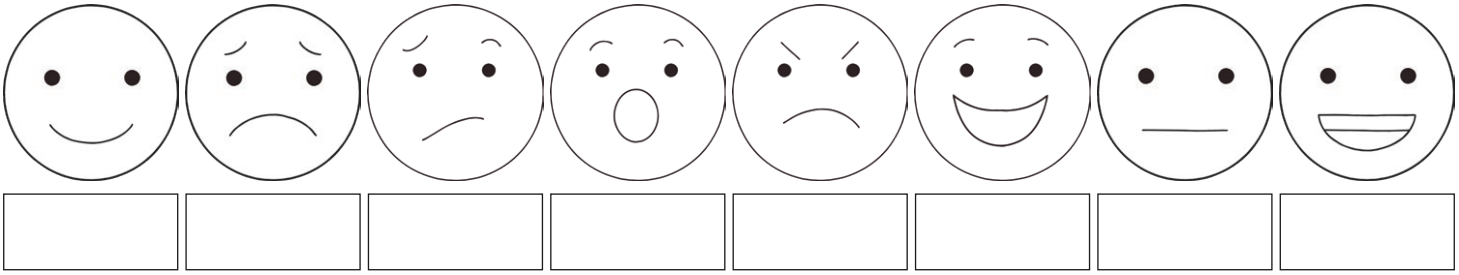




Moji Maths

To compare numbers to 1,000,000.

Write the value of each moji in the key below.



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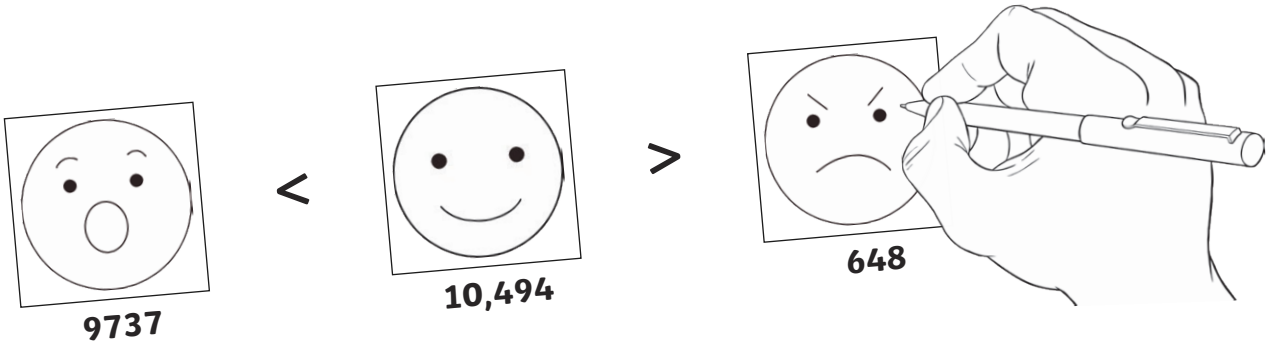
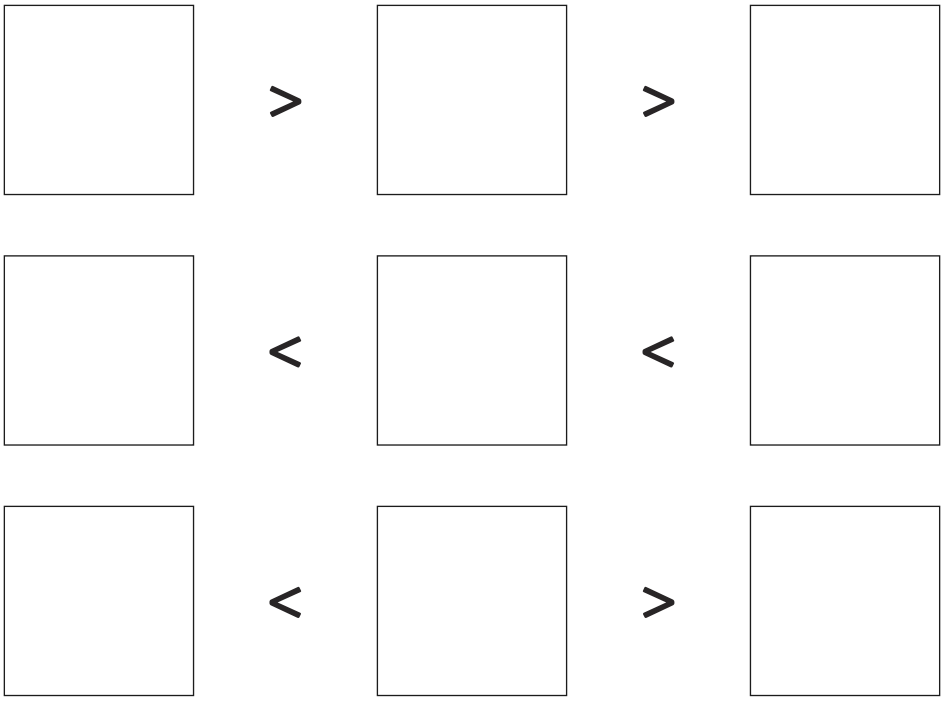
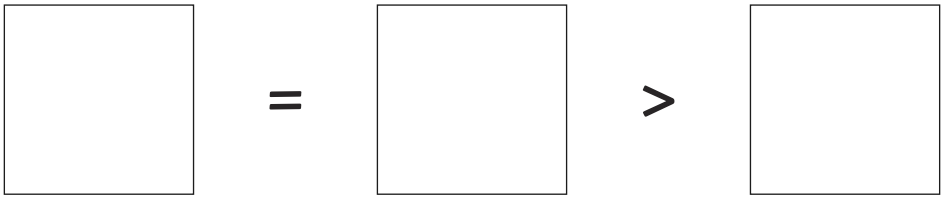
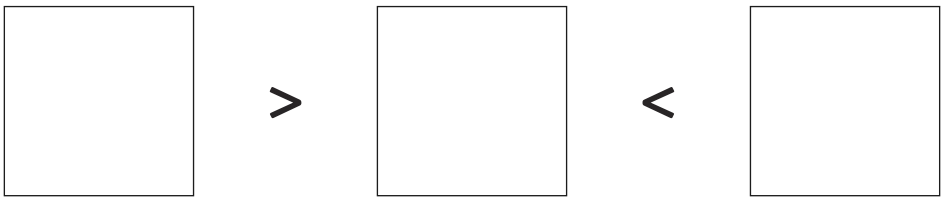
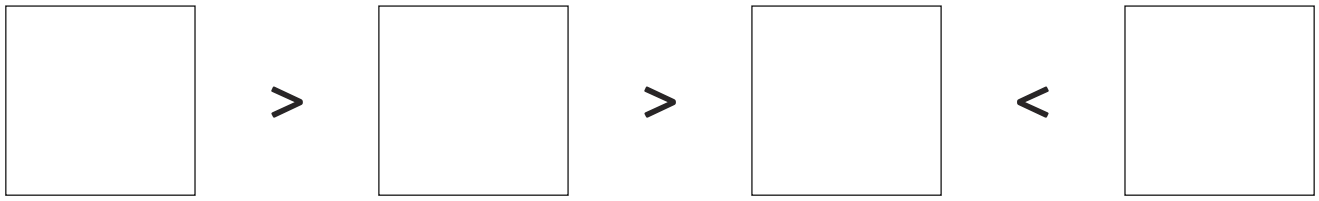
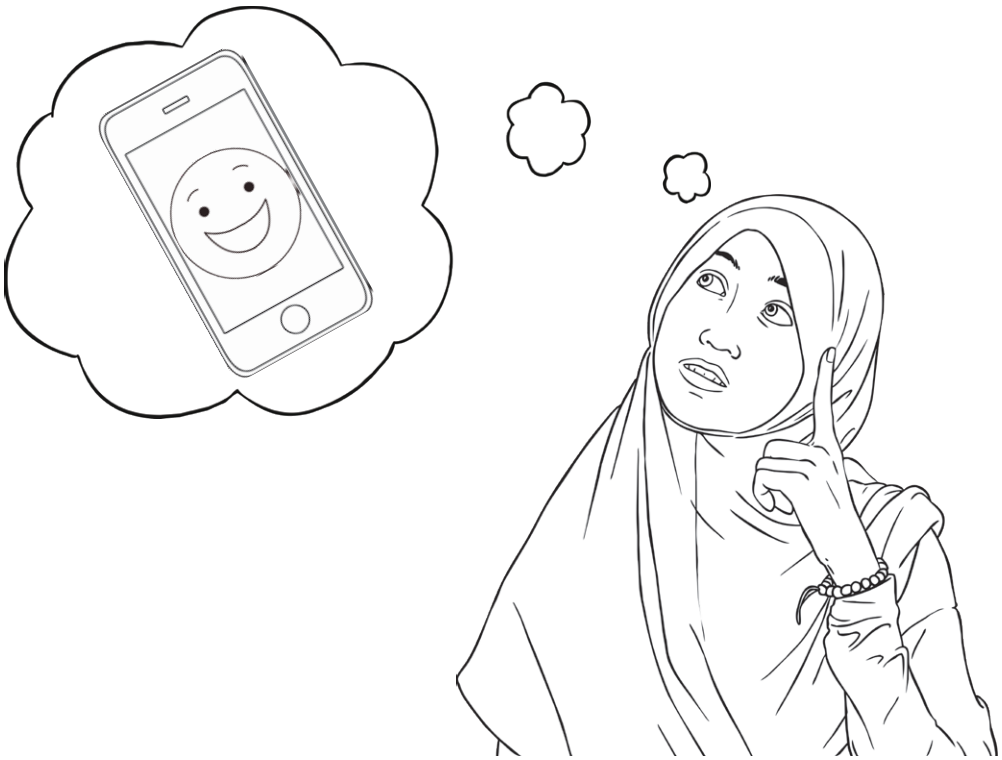








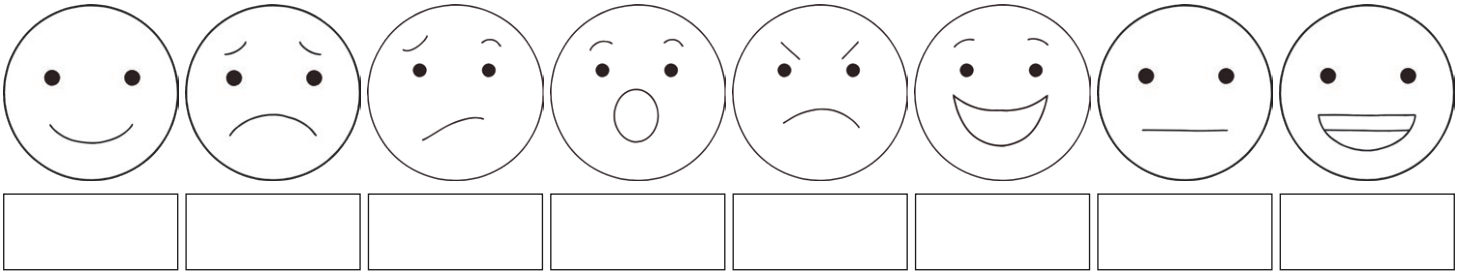




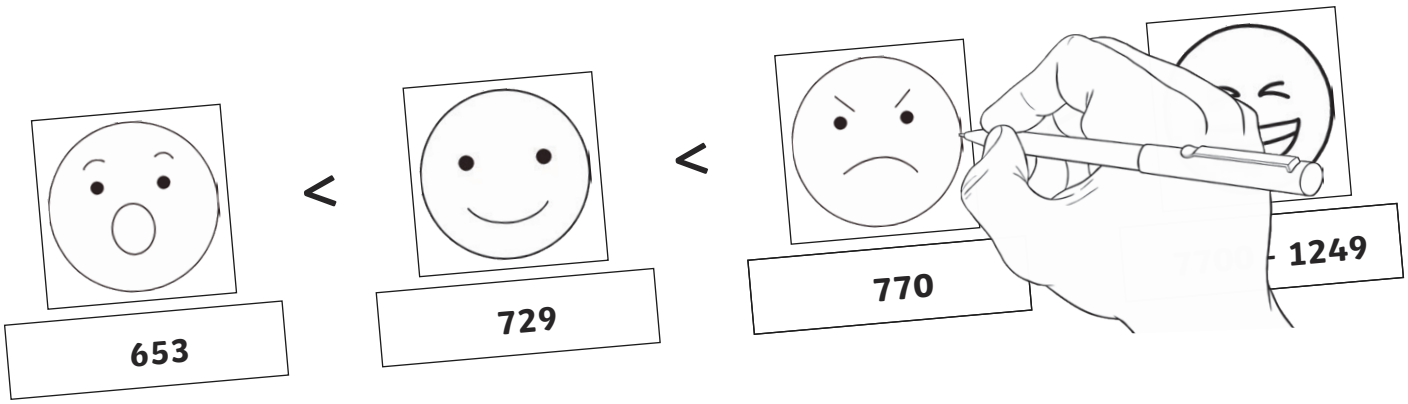
Moji Maths

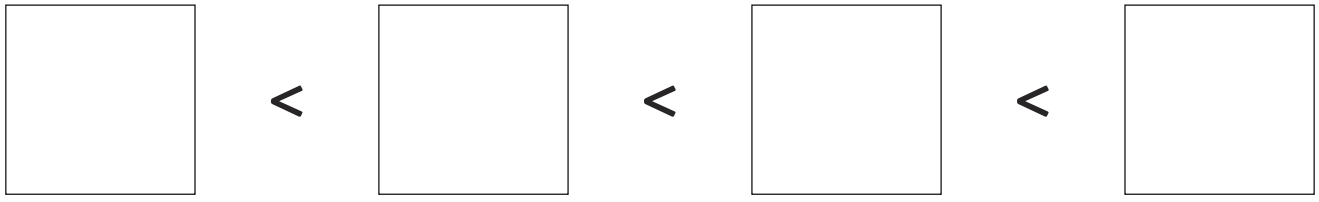
To compare numbers to 1,000,000.

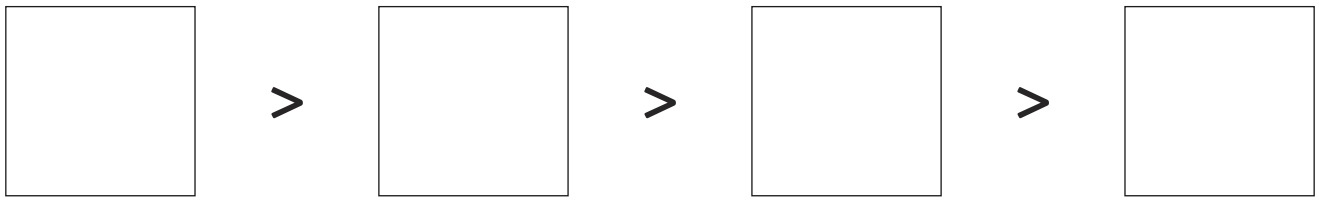
Write the value of each moji in the key below.

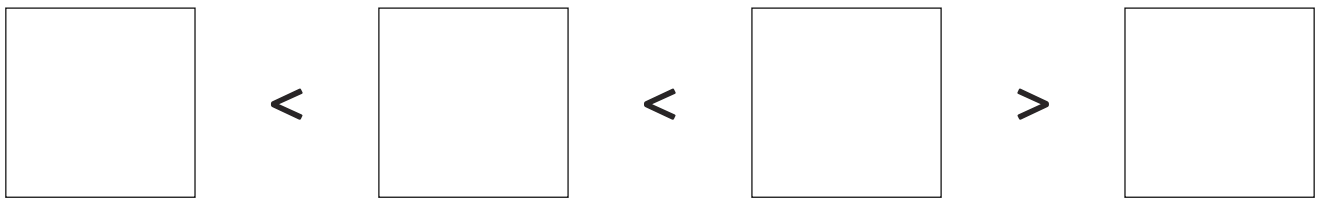


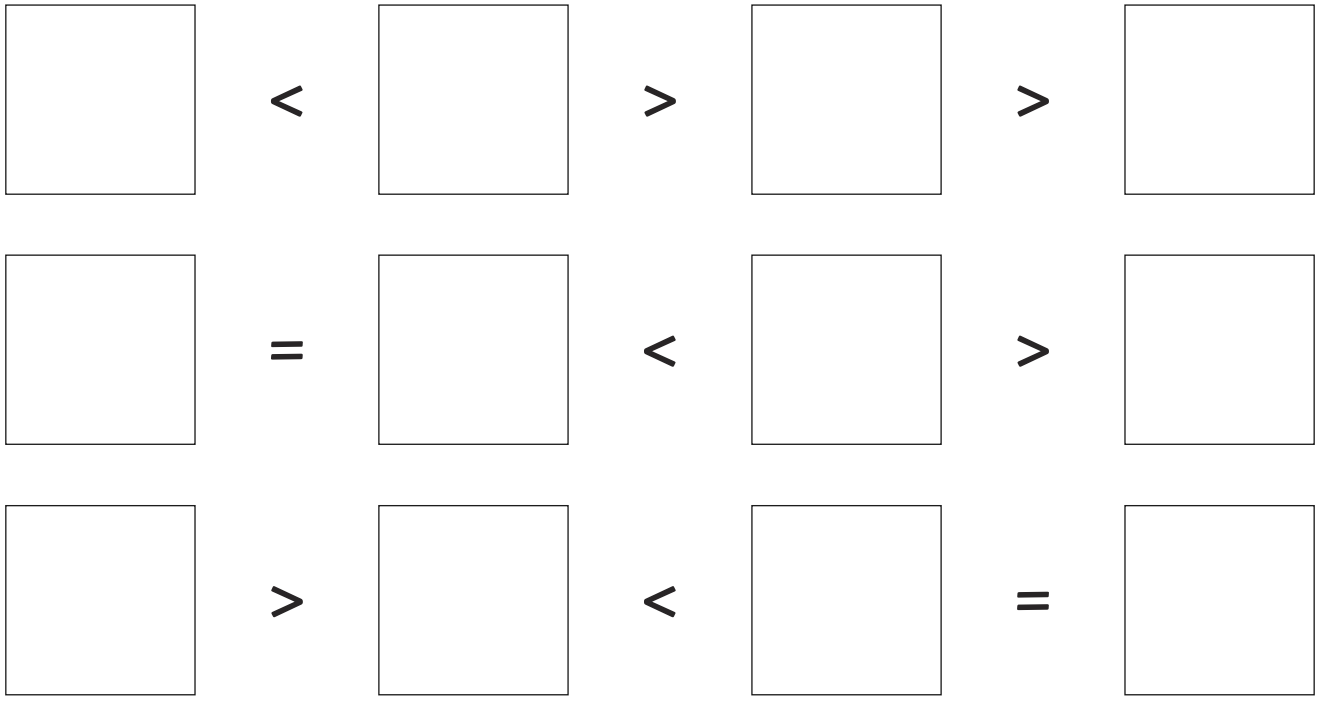
Use the completed key to fill in the missing mojis from the comparison sentences. Each comparison sentence must be different. E.g.







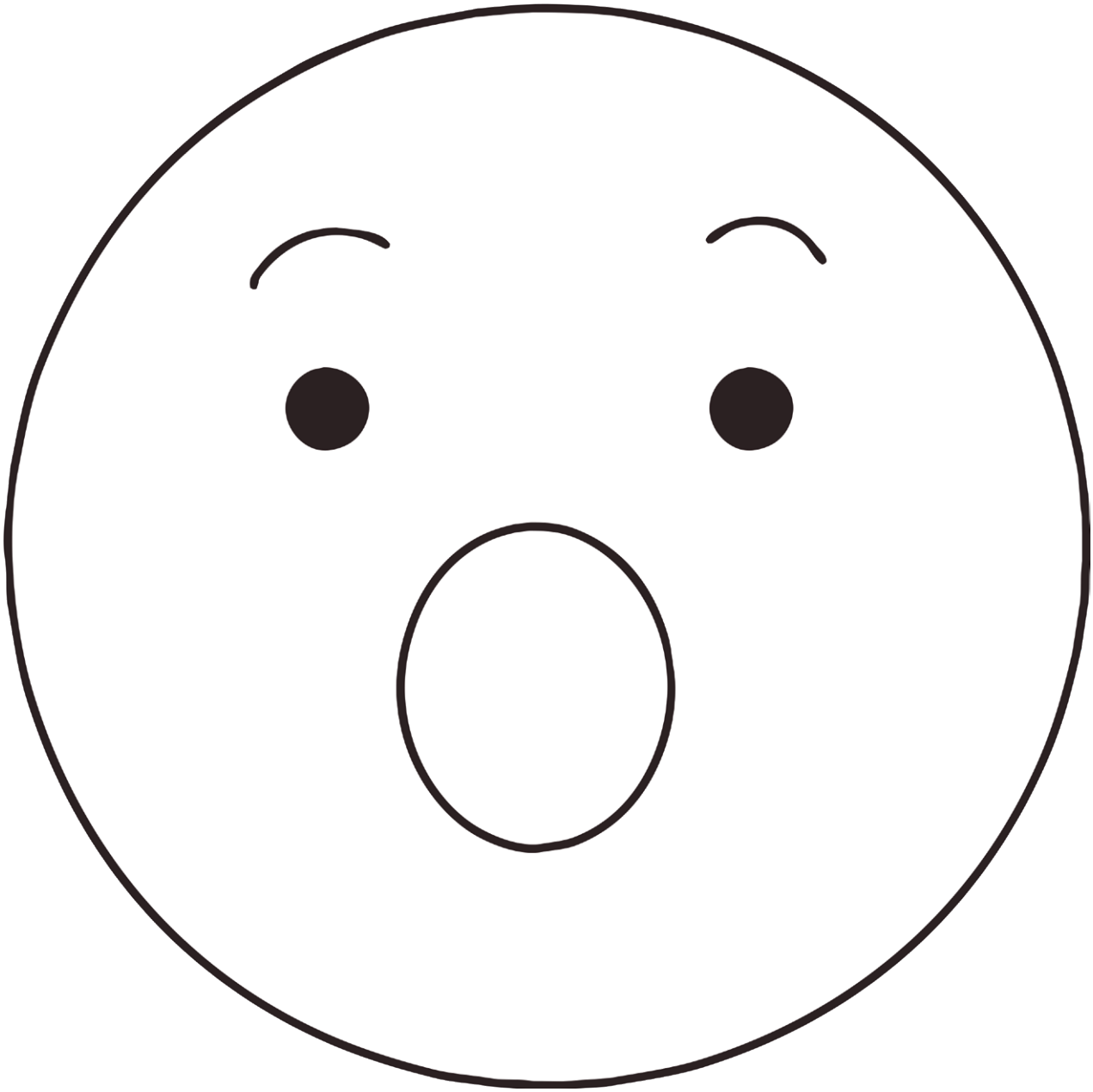




439,900

809,322

439,901

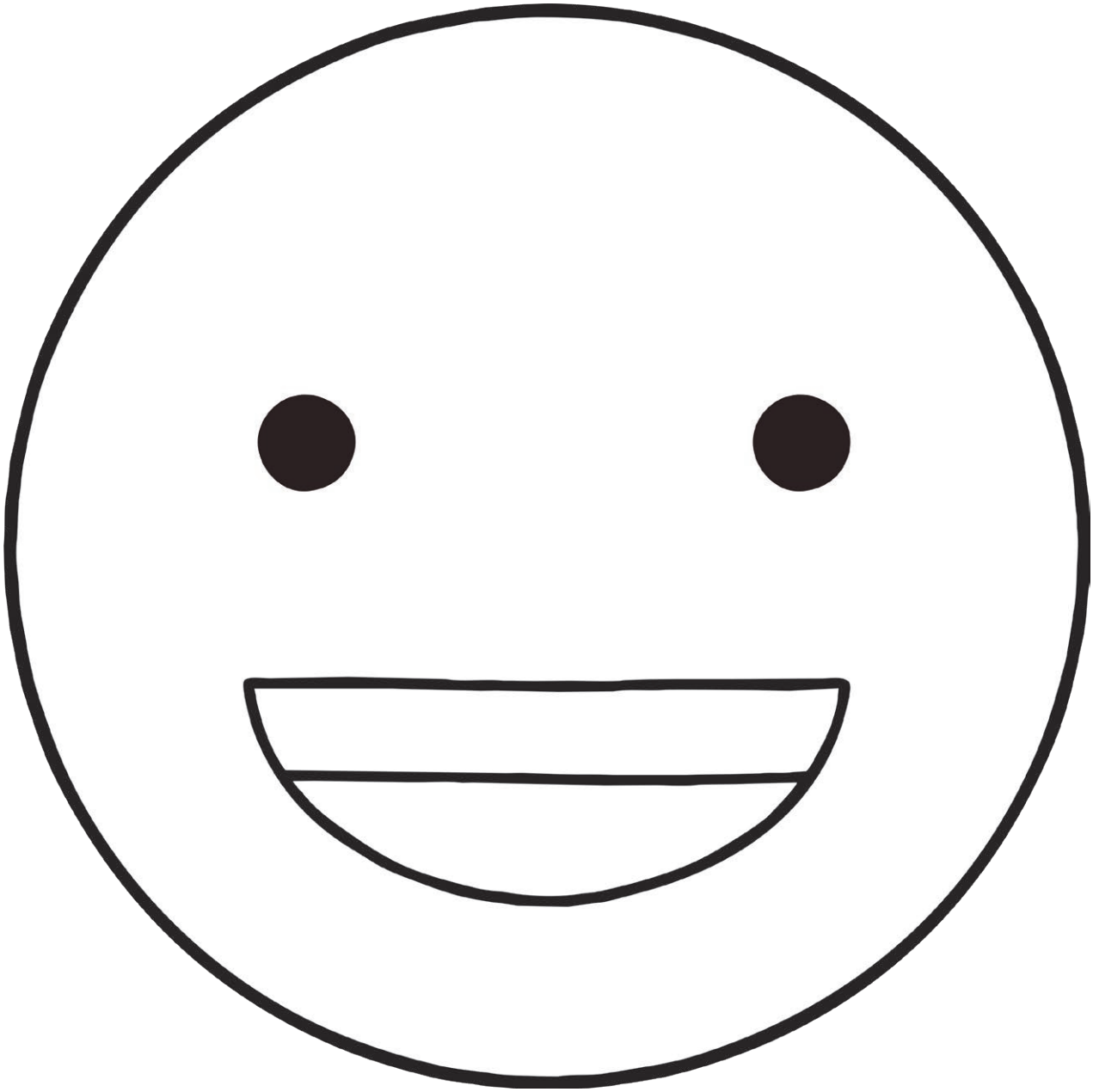


101,298

382,103

209,930

439,901



545,731

Number Comparisons

To compare numbers to 1,000,000.

1. What are the greatest and smallest possible numbers that can be used in these statements?

Statement	Smallest Possible Number	Greatest Possible Number
64,572 < _____ < 65,572		
96,125 > _____ > 44,124		
68,246 < _____ > 18,246		

2. Use <, > or = to compare these numbers.

602,395		Six hundred and thirty-two thousand, two hundred and twelve
534,032		395,506
One hundred and fifteen thousand, two hundred and one		115,201
Nine hundred thousand, three hundred and eighty-five		901,385
420,394		392,493

Number Comparisons

To compare numbers to 1,000,000.

1. What are the greatest and smallest possible numbers that can be used in these statements?

Statement	Smallest Possible Number	Greatest Possible Number
564,572 < _____ < 565,572		
346,125 > _____ > 344,124		
968,246 < _____ > 978,246		

2. Write a digit in each box so that the statements are true

   a. ___26,192 > 642,913

   b. 351,914 > 3__1,837

   c. 89__,196 < 891,888

   d. 505,61__ < 50__,612

3. Rhys must sort these numbers into the table below. Each number can only be used once. Can you help him sort as many of the number as possible into the table?

Numbers between 550,000 and 650,000	Numbers between 50,000 and 60,000	Numbers between _____ and _____

559,600	54,490	589,564	900,000	59,430
56,429	659,560	650,100	719,900	649,560

Number Comparisons

To compare numbers to 1,000,000.

1. Each student has a number. Can you work out which number each student has by using their statement?

   Anna says, "My number is exactly halfway between Ranjit's number and Eli's number."

   Ranjit says, "My number is one hundred thousand less than Eli's number."

   Faheen says, "My number is all of the other children's numbers added together and divided by one hundred."

   Eli says, "My number is ten thousand more than one million."

2. Use the digit cards to make 10 different numbers which are greater than 100,000 and smaller than 1,000,000. You can only use a digit card once in each number.

   Can you find:

   - two numbers with the greatest difference;
   - two numbers with the smallest difference;
   - numbers with a digit sum that is lower than 30;
   - numbers with a digit sum that is greater than 30?

5	3	7	4	8	6	9	0

Number Comparisons **Answers**

To compare numbers to 1,000,000.

1. What are the greatest and smallest possible numbers that can be used in these statements?

Statement	Smallest Possible Number	Greatest Possible Number
64,572 < _____ < 65,572	**64,573**	**65,571**
96,125 > _____ > 44,124	**44,125**	**96,124**
68,246 < _____ > 18,246	**18,247**	**Any number greater than 68,247.**

2. Use <, > or = to compare these numbers.

602,395	**<**	Six hundred and thirty-two thousand, two hundred and twelve
534,032	**>**	395,506
One hundred and fifteen thousand, two hundred and one	**=**	115,201
Nine hundred thousand, three hundred and eighty-five	**<**	901,385
420,394	**>**	392,493

Number Comparisons **Answers**

To compare numbers to 1,000,000.

1. What are the greatest and smallest possible numbers that can be used in these statements?

Statement	Smallest Possible Number	Greatest Possible Number
564,572 < _____ < 565,572	**564,573**	**565,571**
346,125 > _____ > 344,124	**344,125**	**346,124**
968,246 < _____ > 978,246	**968,247**	**Any number greater than 978,247.**

2. Write a digit in each box so that the statements are true

   a. ___26,192 > 642,913 **726,192**, **826,192**, **926,192**

   b. 351,914 > 3___1,837 **341,837**, **331,837**, **321,837**, **311,837**, **301,837**

   c. 89___,196 < 891,888 **890,196**

   d. 505,61___ < 50___,612 **506,612**, **507,612**, **508,612**, **509,612**

3. Rhys must sort these numbers into the table below. Each number can only be used once. Can you help him sort as many of the number as possible into the table?

Numbers between 550,000 and 650,000	Numbers between 50,000 and 60,000	Numbers between _____ and _____
559,600	**56,429**	**659,560**
649,560	**54,490**	**719,900**
565,304	**59,430**	**803,203**

Number Comparisons **Answers**

To compare numbers to 1,000,000.

1. Each student has a number. Can you work out which number each student has by using their statement?

   Anna says, "My number is exactly halfway between Ranjit's number and Eli's number."

   960,000

   Ranjit says, "My number is one hundred thousand less than Eli's number."

   910,000

   Faheen says, "My number is all of the other children's numbers added together and divided by one hundred."

   28,800

   Eli says, "My number is ten thousand more than one million."

   1,010,000

2.
   - Highest number 987,654 - lowest number 345,678. Difference of 641,976.
   - Any number combination with a one number difference, e.g. 356,957 and 356,958.
   - Answers will vary.
   - Answers will vary.

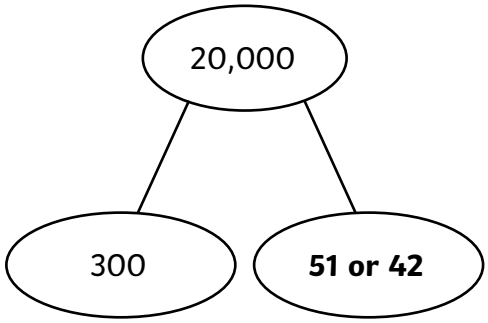
1) a) 6090 is less than 6900.

b) 12,010 is greater than 11,918.

c) Eight thousand and twenty-nine is less than 8109.

d) Two hundred and sixty-four thousand, two hundred and ninety-seven is greater than 206,497.

2)



3) a) 23 < 23,009

b) 50,204 < 51,201

c) One thousand, six hundred and four > 1064

1) Carla is incorrect.
For example:
12 < 24 > 13 = 13

2) James is wrong. Only numbers with seven hundreds that also have a 6 or more in the ten thousands column and a 4 or more in the thousands column will be greater than 64,020. Rio is correct as seven ten thousands is greater than six ten thousands.

3) a) 6090 is **GREATER** than 6009.

b) 112,010 is **GREATER** than 111,918.

c) Eight hundred thousand and twenty-nine is **LESS** than 800,109.

d) Two hundred and sixty-four thousand, two hundred and ninety-seven is **GREATER** than 206,497.

1) a) **Examples include:**
9876 > 12 < 345
9876 > 21 < 543

b) **The largest selection of digits that can be chosen is 9876. Starting with the largest digit and selecting digits in descending order helps to find the largest number.**

2) a) 600,900 is **GREATER** than 600,090.

b) 912,010 is **GREATER** than 911,918.

c) Eight hundred thousand and twenty-nine is **LESS** than 800,109.

d) Two hundred and sixty-four thousand, two hundred and sixty-four is **GREATER** than 264,261.

Read and Write Numbers to 1,000,000

1. Compare the numbers, using the words greater or less to complete each number sentence.

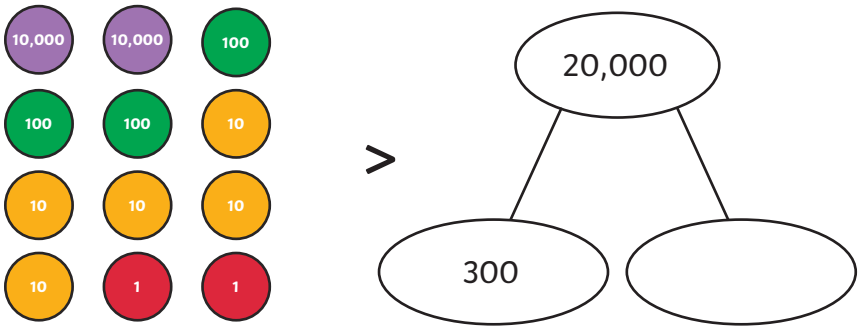
a) 6090 is _____ than 6900.

b) 12,010 is _____ than 11,918

c) Eight thousand and twenty-nine is _____ than 8109.

d) Two hundred and sixty-four thousand, two hundred and ninety-seven is _____ than 206,497.

2. Think of a number that could be made with one less counter. Use it to complete the part-whole model keeping the statement true.



3. Use <, > or = to correctly complete the statements.

a) 23 _____ 23,009

b) 50,204 _____ 51,201

c) One thousand, six hundred and four _____ 1064

Read and Write Numbers to 1,000,000

1. Compare the numbers, using the words greater or less to complete each number sentence.

a) 6090 is _____ than 6900.

b) 12,010 is _____ than 11,918

c) Eight thousand and twenty-nine is _____ than 8109.

d) Two hundred and sixty-four thousand, two hundred and ninety-seven is _____ than 206,497.

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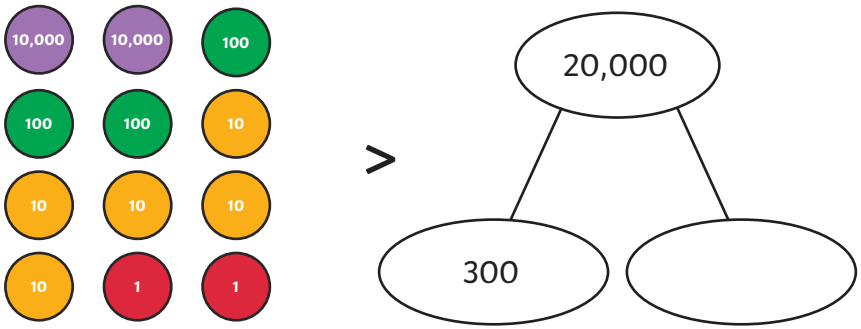


3. Use <, > or = to correctly complete the statements.

a) 23 _____ 23,009

b) 50,204 _____ 51,201

c) One thousand, six hundred and four _____ 1064

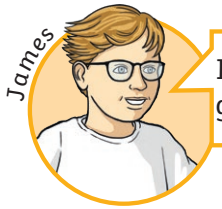
Read and Write Numbers to 1,000,000

1. Some students are discussing different ways that mathematical symbols can be used in number sentences.

You cannot use the greater than, less than and equal to symbols in the same number statement.

Do you agree with Carla? Explain with reasoning.

2. James and Rio are looking at the number 64,020.



I think any number with seven hundreds will be greater than 64,020.

I think any number with seven ten thousands will be greater.

Do you agree with James and Rio?
Explain your answer.

3. Compare the numbers, using the words greater or less complete each number sentence.

a) 6090 is ____ than 6009.

b) 112 010 is ____ than 111 918.

c) Eight hundred thousand and twenty-nine is ____ than 800 109.

d) Two hundred and sixty-four thousand, two hundred and ninety-seven is ____ than 206,497.

Read and Write Numbers to 1,000,000

1. Some students are discussing different ways that mathematical symbols can be used in number sentences.

You cannot use the greater than, less than and equal to symbols in the same number statement.

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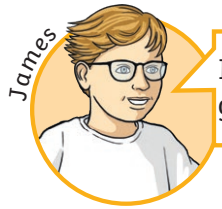


I think any number with seven hundreds will be greater than 64,020.

I think any number with seven ten thousands will be greater.

Do you agree with James and Rio?
Explain your answer.

3. Compare the numbers, using the words greater or less complete each number sentence.

a) 6090 is ____ than 6009.

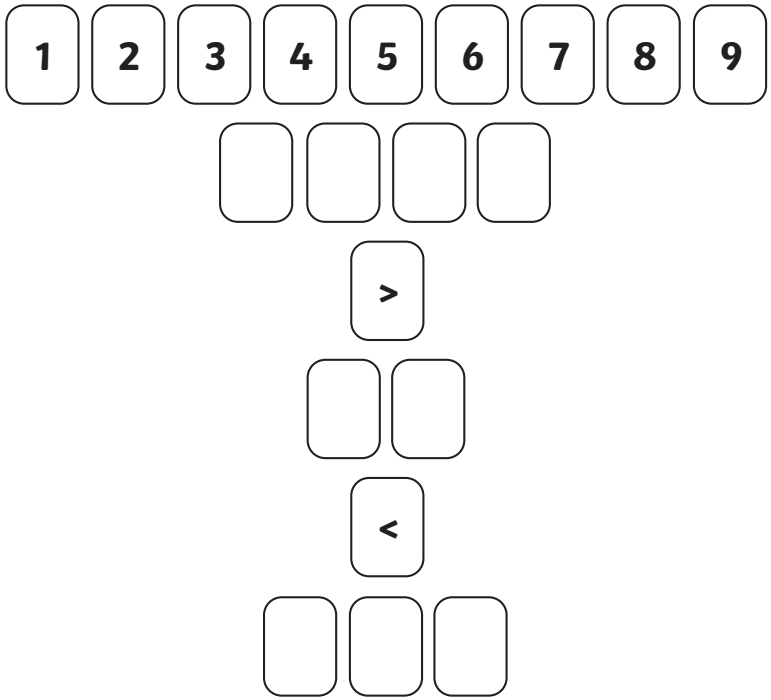
b) 112 010 is ____ than 111 918.

c) Eight hundred thousand and twenty-nine is ____ than 800 109.

d) Two hundred and sixty-four thousand, two hundred and ninety-seven is ____ than 206,497.

Read and Write Numbers to 1,000,000

1. **a)** Use each digit once to complete the number statement.



b) What is the largest number that can be made to satisfy the first number in the statement?
Explain your thinking.

2. Compare the numbers, using the words greater or less complete each number sentence.

a) 600,900 is ____ than 600,090.

b) 912,010 is ____ than 911,918.

c) Eight hundred thousand and twenty-nine is ____ than 800,109.

d) Two hundred and sixty-four thousand, two hundred and sixty-four is ____ than 264,261.

Read and Write Numbers to 1,000,000

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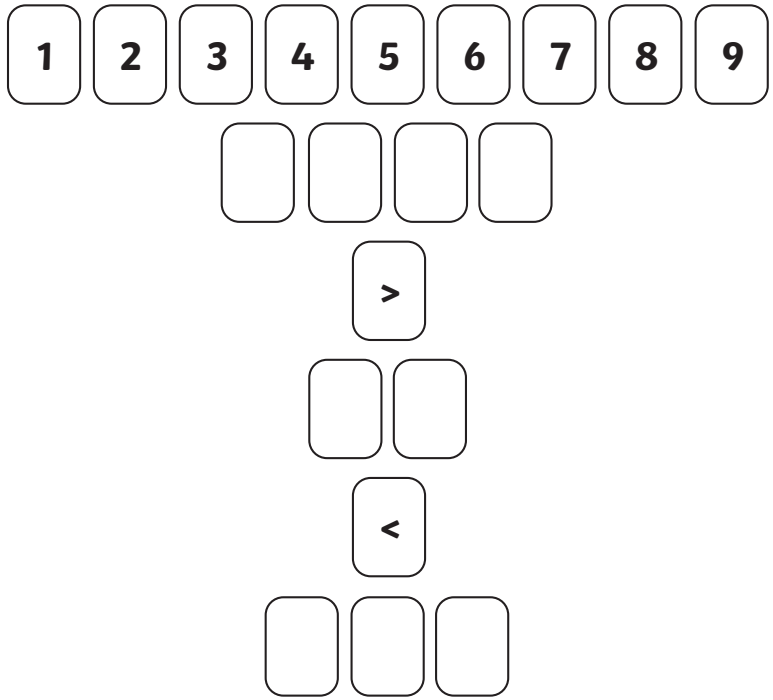

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Read and Write Numbers to 1,000,000 | Number Comparisons

To compare numbers to 1,000,000.		
I can use < and > to compare numbers.		
I can say which number is greater than or less than.		
I can compare numbers to 1,000,000.		

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