

Understand it!

Use basic facts, place-value patterns and estimation to find the quotient.

## Using Mental Maths to Divide

How can you use patterns to help you divide mentally?

Mr Eliades ordered a supply of 320 pastels.

He needs to divide them equally among

four art classes. How many pastels

does each class get?

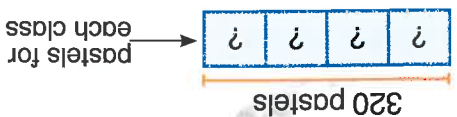
### Choose an Operation

Division is used to make equal groups.



320 pastels

Find  $320 \div 4$ .



The basic fact is  $32 \div 4 = 8$ .

$32 \text{ tens} \div 4 = 8 \text{ tens or } 80$ .

$320 \div 4 = 80$

Each class will get 80 pastels.

Find  $400 \div 8$ .

The basic fact is  $40 \div 8$ .

$40 \text{ tens} \div 8 = 5 \text{ tens or } 50$ .

$400 \div 8 = 50$

Each class will get 50 erasers.

Mr Eliades wants to divide 400 erasers among 8 classes. How many erasers will each class get?

### Another Example

When and how do you estimate quotients to solve problems?

Max wants to make 9 rubber-band balls. He bought a jar of 700 rubber bands.

Estimate to find out about how many rubber bands he can use for each ball.

### One Way

Use compatible numbers.

What number close to 700 is easily divided by 9?

Try multiples of ten near 700.

710 is not easily divided by 9.

720 is 72 tens and can be divided by 9.

$720 \div 9 = 80$

A good estimate is about 80 rubber bands for each ball.

A rounded solution is all that is needed. Max does not need to know the exact number of rubber bands to use for each ball.



So, a good estimate is about 80 rubber bands for each ball.

$700 \div 9$  is about 80.

so  $9 \times 80 = 720$ .

$9 \times 8 = 72$ ,

9 times what number is about 700?

Use multiplication.

### Another Way

### Guided Practice

Use patterns to find each quotient.

1  $28 \div 7 = \square$

$280 \div 7 = \square$

$2800 \div 7 = \square$

$28000 \div 7 = \square$

104 one hundred and four

2  $64 \div 8 = \square$

$640 \div 8 = \square$

$6400 \div 8 = \square$

$64000 \div 8 = \square$

3  $20 \div 5 = \square$

$200 \div 5 = \square$

$2000 \div 5 = \square$

$20000 \div 5 = \square$

Curriculum link: NA073, NA075, NA076, NA081

### Problem Solving



13a How many \$5 notes make \$35? How many \$5 notes make \$350?

10  $7200 \div 8 = \square$

Estimate each quotient.

$36000 \div 9 = \square$

$3600 \div 9 = \square$

$360 \div 9 = \square$

7  $36 \div 9 = \square$

8  $45 \div 5 = \square$

5  $48 \div 5 = \square$

Estimate each quotient.

11  $639 \div 3 = \square$

Estimate each quotient.

$45000 \div 5 = \square$

$4500 \div 5 = \square$

$450 \div 5 = \square$

8  $45 \div 5 = \square$

5  $235 \div 8 = \square$

### Independent Practice

11  $639 \div 3 = \square$

Estimate each quotient.

$45000 \div 5 = \square$

$4500 \div 5 = \square$

$450 \div 5 = \square$

8  $45 \div 5 = \square$

5  $235 \div 8 = \square$

12  $927 \div 9 = \square$

Estimate each quotient.

$90000 \div 3 = \square$

$9000 \div 3 = \square$

$900 \div 3 = \square$

9  $90 \div 3 = \square$

6  $547 \div 6 = \square$

b Using this pattern, what else could you calculate in your head?