Name & Surname: _____ Class: _____ Date: _____

PRIME TIME!

Spot primes, composites and prime factors.

About 45 minutes Level ★★★☆☆

Prime or composite?

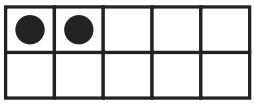
A **factor** is a whole number that divides another number exactly.

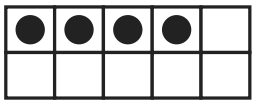
- A **prime** number has exactly 2 **factors**: 1 and itself, such as 7 = 1 × 7.
- A **composite** number has more than 2 factors, such as 6 = 2 × 3.
- 1 is special: it has only one **factor**, so it is neither prime nor **composite**.
- A **prime** factor is a factor that is also prime, such as 2 and 3 are the prime factors of 12.
- 2 is the only even **prime**. Every other even number also divides by 2.

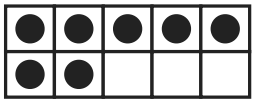
Task A

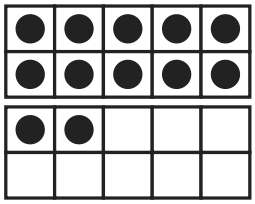
/5

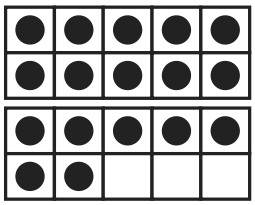
Count the dots and write each number. Circle the prime numbers.

1 

2 

3 

4 

5 

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SORT PRIME NUMBERS

Practise using **prime** vocabulary with numbers to 20.

Task B

/10

Practise spotting prime numbers, composite numbers and factors.

WARM UP

1 Is 5 **prime** or composite?

Answer: _____

2 Is 6 **prime** or composite?

Answer: _____

3 Is 1 **prime** or neither? Think about its **factors**.

Answer: _____

4 Which number is the only even **prime**?

Answer: _____

PRACTISE

5 Write all the **factors** of 7.

Answer: _____

6 Write all the **factors** of 9. Is 9 **prime**?

Answer: _____

7 What are the **prime** factors of 6?

Answer: _____

PROBLEM SOLVING

8 A student has 13 **pencils**. Can they make equal teams of more than 1 with none left out? Is 13 **prime**?

Answer: _____

9 A shopkeeper has 18 **cakes**. Show two equal rows they could make. Is 18 **prime**?

Answer: _____

10 Explain how you know 19 is **prime**.

Answer: _____

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SPOT THE MISTAKE

Find the wrong step and fix it.

Key words

prime number: a whole number with exactly two factors

composite number: a whole number with more than two factors

factor: a number that divides another number exactly

prime factor: a whole number greater than 1 that can only be divided by 1 and itself and divides another number exactly

multiple: a number in another number's times table

Task C

/6

Read each solution. Find the wrong step and explain the mistake.



Student A

Is 9 **prime**?

1. 9 is an odd **number**
2. All odd **numbers** are prime
3. So 9 is **prime**

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____



Student B

What are the **prime** factors of 12?

1. The **factors** of 12 are 1, 2, 3, 4, 6 and 12
2. The **prime** ones are 1, 2 and 3
3. So the **prime** factors are 1, 2 and 3

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____



Student C

Is 2 **prime**?

1. 2 is an even **number**
2. All even **numbers** are composite
3. So 2 is not **prime**

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____

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PRIME FACTOR CHALLENGE

Use **prime** facts with numbers to 100.

Task D

/10

Sort primes and composites and find prime factors.

WARM UP

1 Which of these are **prime**? 2, 6, 7, 10

Answer: _____

2 Write all the **prime** numbers between 10 and 20.

Answer: _____

3 How many **factors** does 11 have?

Answer: _____

4 Is 15 **prime** or composite?

Answer: _____

PRACTISE

5 Is 51 **prime**? Use its **digit** sum 5 + 1 = 6.

Answer: _____

6 What are the **prime** factors of 15?

Answer: _____

7 What are the **prime** factors of 20?

Answer: _____

PROBLEM SOLVING

8 A baker has 29 **buns**. Can they fill equal boxes with more than 1 bun and none left over? Is 29 **prime**?

Answer: _____

9 Write 36 as a **product** of prime factors using ×.

Answer: _____

10 Explain why 1 is neither **prime** nor composite.

Answer: _____

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RECALL AND PLACE

Recall old **skills** and place numbers.

Task E

/14

Answer quick questions. Aim for 10 points.

1 point

Work out 3 × 4 **cakes**.

1 point

Share 20 **pencils** equally between 5 pupils. How many each?

2 points

Give a **factor** pair of 16.

2 points

Is 24 a **multiple** of 6?

2 points

Write the next **multiple** of 5 after 20.

3 points

Write all the **factors** of 18.

3 points

What is half of 30 **stickers**? Write $\frac{1}{2} \times 30$.

My score: _____ out of 14 · Target: 9

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PRIME TIME!

↑↓ Task F

/3

Read arrows A and B. Mark the prime number 19. Say if each is prime.



A = ☐ **B =** ☐ Draw an arrow to show: 19

How did I do?

Circle a face for each line.

I can explain what a prime number is.	☹ 😐 ☺
I can tell if a number to 100 is prime.	☹ 😐 ☺
I can find prime factors of a number.	☹ 😐 ☺

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Answer sheet: Prime Time!

Task A

1. 2
2. 4
3. 7
4. 12
5. 17

Task B

1. prime
2. composite
3. neither
4. 2
5. 1 and 7
6. No, 1, 3 and 9 so composite
7. 2 and 3
8. No - 13 is prime
9. No - e.g. 2×9, so composite
10. Its only factors are 1 and 19

Task C

1. Step 2 is wrong: They thought all odd numbers are prime. 9 has three factors, 1, 3 and 9, so it is composite.
Correct answer: composite
2. Step 2 is wrong: They included 1, but 1 has only one factor so it is not prime. The prime factors are 2 and 3.
Correct answer: 2 and 3
3. Step 2 is wrong: They thought no even number can be prime. 2 has exactly two factors, 1 and 2, so it is prime.
Correct answer: prime

Task D

1. 2 and 7
2. 11, 13, 17, 19
3. 2
4. composite
5. No, $51 = 3 \times 17$, so composite
6. 3 and 5
7. 2 and 5
8. No - 29 is prime
9. $36 = 2 \times 2 \times 3 \times 3$
10. It has only one factor, 1 itself

Task E

1. 12
2. 4
3. 2 and 8
4. Yes
5. 25
6. 1, 2, 3, 6, 9, 18
7. 15

Task F

A = 7; B = 12; arrows at 19

Pictures: Characters: Open Peeps by Pablo Stanley (CC0)

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