



Landing Light Puzzle

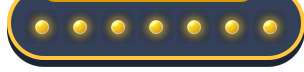
Prime and composite numbers · Ages 5 to 9 · Goes with Whirly's Number Rescue, Episode 2: Landing Light Puzzle

Whirr, whirr! Welcome back, sky friend! Tonight is the Great Sky Show, and we need landing lights. Pick your rider, then finish all 7 flights to earn your Prime Number Rescue Wings!

Whirly's flight card

Prime

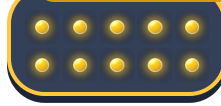
7 lights: only 1 row



A prime number is a whole number greater than 1 that can only be divided evenly by 1 and itself.

Composite

10 lights: 2 rows of 5



A whole number greater than 1 that is not prime is called a composite number. It has more than two factors.

1 and 2



1 is not prime, because it only has one factor. 2 is the smallest prime number, and the only even prime number.

Pre-Flight Prime Check

Pre-Flight Prime Check

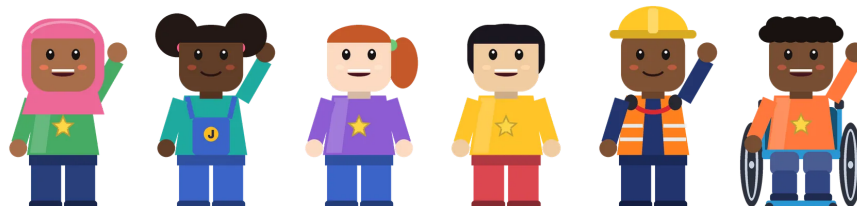
- 1 Is it 1? NOT prime
- 2 Is it 2? PRIME
- 3 Landing digit even, or 5? NOT prime (except 5)
- 4 One of Buzz's Sneaky Six? NOT prime

9
21
27
33
39
49
- ★ Passed every check? PRIME!

For numbers up to 50, use my Pre-Flight Prime Check. If a number passes every check, it is cleared for take-off. It is prime!

Our chant: Only one row? Prime, prime, prime! Just two factors, every time!

For grown-ups: Watch the video together first. Then work through the 7 flights, one or two a day. Read the instructions aloud if your child is still learning to read. Every flight has an answer on the last page, with a short reason you can share. Cut out the question cards for the board game.





Landing Lights

Try to set out the lights in 2 or 3 equal rows. For big numbers, use the Pre-Flight Prime Check. Tick a box.



- 1 Can these lights make more than one equal row?



☐ Prime ☐ Composite

- 2 Can these lights make more than one equal row?



☐ Prime ☐ Composite

- 3 Can these lights make more than one equal row?



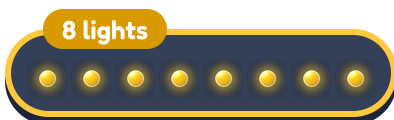
☐ Prime ☐ Composite

- 4 Do the Pre-Flight Prime Check. Prime or composite?



☐ Prime ☐ Composite

- 5 Can these lights make more than one equal row?



☐ Prime ☐ Composite

- 6 Can these lights make more than one equal row?



☐ Prime ☐ Composite

- 7 Do the Pre-Flight Prime Check. Prime or composite?



☐ Prime ☐ Composite

- 8 Can these lights make more than one equal row?



☐ Prime ☐ Composite



Pre-Flight Fix-Up

Fill each gap. Then find the one number Buzz labeled wrong, circle it, and fix it.



- 1 These are prime numbers in order. Which prime fills the gap? Write it in the box.

2 , **3** , **5** , , **11**

- 2 These are prime numbers in order. Which prime fills the gap? Write it in the box.

13 , , **19** , **23**

- 3 Pick a landing digit to make a prime number. Write it in the box.

2

- 4  Buzz says: "Bzzz! I labeled every number on the light board. That was super fast!"

One label is wrong. Circle the number Buzz got wrong. Write the right label under it.

19 Prime	25 Not prime	27 Prime
31 Prime	40 Not prime	47 Prime

Why was Buzz wrong? Write the reason.



Factor Match

Draw a line from each number to its factors. Then circle the numbers that have exactly two factors. They are prime!



Numbers

6

5

9

10

4

11

Factors

1

3

9

1

2

5

10

1

2

4

1

11

1

2

3

6

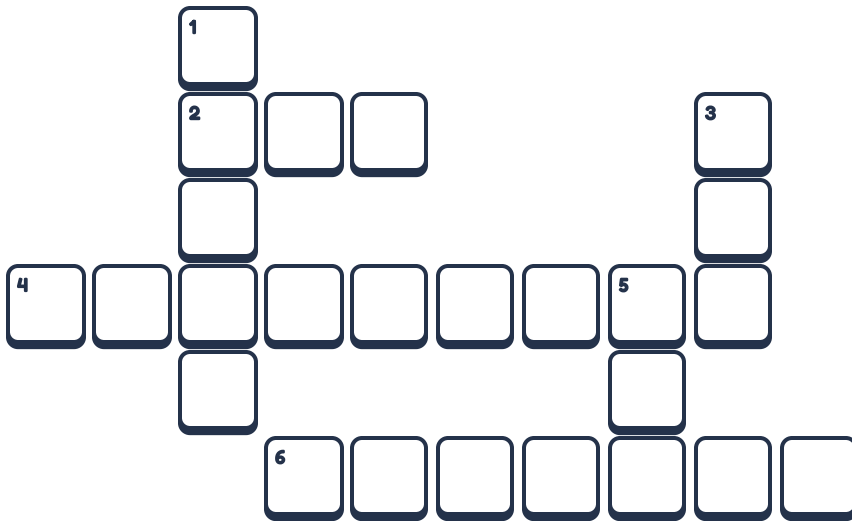
1

5



Sky Words Crossword

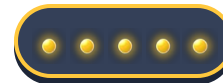
Read each clue and look at its picture. Write one letter in each box.



1 down · 5 letters
7 lights only make one row. 7 is a ___ number.



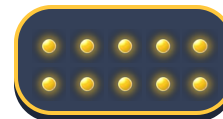
2 across · 3 letters
A prime number only makes one ___ of lights.



3 down · 3 letters
___ is not prime, because it only has one factor.



4 across · 9 letters
A whole number greater than 1 that is not prime is ___.



5 down · 3 letters
___ is the smallest prime number, and the only even prime.



6 across · 7 letters
The numbers that divide a number evenly are called ___.



Word bank: COMPOSITE · FACTORS · ONE · PRIME · ROW · TWO

5

Prime Light Hunt

Answer each clue and write the word in the boxes. Then find the word in the grid and color it in. Words go across → or down ↓ only.



Z	G	D	D	B	V	M	C
K	F	I	V	E	Q	L	H
F	L	J	B	L	L	J	H
M	M	Q	D	P	V	K	H
K	Z	L	S	E	V	E	N
E	L	E	V	E	N	D	M
B	M	M	J	W	T	W	O
W	M	W	X	H	K	M	L



The smallest prime number. It is the only even prime.

— — —



The only prime number that lands on 5.

— — — —

5



The next prime number after 5.

— — — — —

10



The first prime number after 10.

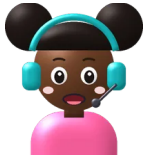
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Stuck? Here are the words, upside down: two · five · seven · eleven



Think Like a Co-Pilot

Answer each question. Then explain why. Co-pilots always explain!



"We have 21 landing lights. Can they make more than one equal row?"

21 lights



Step 1. Can 21 lights make more than one equal row?

☐ Yes, so 21 is composite ☐ No, so 21 is prime

Step 2. Why?

Step 3. How sure are you? 😞 ☐ 😊 ☐ 😄 ☐



"I did the Pre-Flight Prime Check on 29. Is 29 cleared for take-off?"

29

Pre-Flight Prime Check

- 1 Is it 1? ☒
- 2 Is it 2? ☒
- 3 Landing digit even, or 5? ☒
- 4 One of Buzz's Sneaky Six? 9 21 27 33 39 49 ☒
- ★ Passed every check?

Step 1. Is 29 prime?

☐ Yes, 29 is prime ☐ No, 29 is not prime

Step 2. Why?

Step 3. How sure are you? 😞 ☐ 😊 ☐ 😄 ☐



"Only one of these numbers is prime: 45, 47 or 49. Which one?"



Step 1. Which number is prime?

☐ 45 ☐ 47 ☐ 49

Step 2. Why?

Step 3. How sure are you? 😞 ☐ 😊 ☐ 😄 ☐



Great Sky Show Race

A game for 2 to 4 players. You need a die (or number cards 1 to 6) and a coin or button for each player.



20 finish	19 down to 12	18 question card	17	16
11 zoom up to 17	12	13	14 question card	15 down to 8
10 question card	9	8	7 zoom up to 13	6
1 start	2	3 zoom up to 9	4	5 question card

How to play: Roll and move. Land on 🌈, 🛸 or ★? Another player reads you a question card.
 🌈 Answer right to zoom up. 🛸 Answer right to fly past Buzz, or slide down. ★ Answer right to roll again. First to the 🏆 wins!



Question Cards

Cut out the cards and put them face down in a pile. The answer is printed upside down at the bottom.



★ Question 1

Is 11 prime or composite?



★ Prime

■ Composite

Answer: Prime

★ Question 2

How many factors does 1 have?



0

1

2

Answer: 1

★ Question 3

Which number is the only even prime?

2

4

8

Answer: 2

★ Question 4

Which number is one of Buzz's Sneaky Six?

21

23

29

Answer: 21

★ Question 5

6 lights make 2 rows of 3. Is 6 prime or composite?



★ Prime

■ Composite

Answer: Composite

★ Question 6

Do the Pre-Flight Prime Check. Which number is prime?

44

19

39

Answer: 19

★ Question 7

What are the factors of 3?



✓ 1 and 3

+ 1, 2 and 3

3 Only 3

Answer: 1 and 3

★ Question 8

Is 20 prime or composite?

20

★ Prime

■ Composite

Answer: Composite

★ Question 9

A prime number makes how many rows of lights?

1

2

3

Answer: 1

★ Question 10

5 lands on 5. Is 5 prime?



👍 Yes

👎 No

Answer: Yes



Rescue Wings Earned!



earned the **Prime Number Rescue Wings**

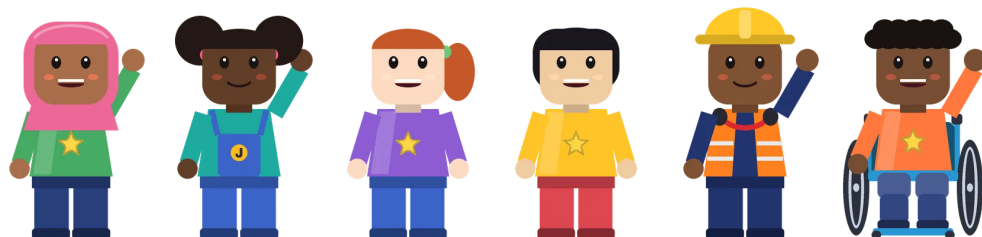
A prime number only makes one row of lights, so it has exactly two factors: 1 and itself. 1 is not prime. 2 is the only even prime. A whole number greater than 1 that is not prime is composite.

Our chant: Only one row? Prime, prime, prime! Just two factors, every time!

How does this math feel now? Color one.

☐ I need more practice ☐ I am getting there ☐ I can teach it!

Date _____ Signed _____



Answer Key

1. Landing Lights

1. Prime: 2 rows or 3 rows leave a light over. 5 only makes one row. 5 is prime!
2. Composite: 10 lights make 2 rows of 5. 10 is composite!
3. Prime: 11 lights only make one row. Its only factors are 1 and 11. 11 is prime!
4. Composite: 38 is not 1 or 2, and it lands on 8, an even digit. 38 is composite!
5. Composite: 8 lights make 2 rows of 4. 8 is composite!
6. Composite: 15 lights make 3 rows of 5. 15 is composite!
7. Prime: 43 is not 1 or 2. It lands on 3, and it is not one of the Sneaky Six. 43 is prime!
8. Prime: 17 lights only make one row. Its only factors are 1 and 17. 17 is prime!

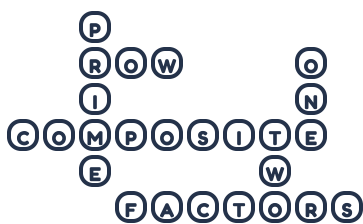
2. Pre-Flight Fix-Up

1. 7, 2, 3, 5, 7, 11. 8 is even, and 9 is one of the Sneaky Six.
2. 17, 13, 17, 19, 23. 15 lands on 5, and 18 lands on 8, so they are not prime.
3. 2 and 3 make 23. It lands on 3 and it is not one of the Sneaky Six, so 23 is prime.
4. Buzz's mistake: 27 should say Not prime. 27 is one of Buzz's Sneaky Six. It is odd, but it is not prime.

3. Factor Match

- 6 has four factors: 1, 2, 3 and 6. 6 is composite
 5 has exactly two factors: 1 and 5. 5 is prime
 9 has three factors: 1, 3 and 9. 9 is composite
 10 has four factors: 1, 2, 5 and 10. 10 is composite
 4 has three factors: 1, 2 and 4. 4 is composite
 11 has exactly two factors: 1 and 11. 11 is prime

4. Sky Words Crossword



- 1 down: prime, 2 across: row, 3 down: one, 4 across: composite, 5 down: two, 6 across: factors

5. Prime Light Hunt

two, five, seven, eleven

Z	G	D	D	B	V	M	C
K	F	I	V	E	Q	L	H
F	L	J	B	L	L	J	H
M	M	Q	D	P	V	K	H
K	Z	L	S	E	V	E	N
E	L	E	V	E	N	D	M
B	M	M	J	W	T	W	O
W	M	W	X	H	K	M	L

6. Think Like a Co-Pilot

1. Yes, so 21 is composite. 3 rows of 7 lights make 21.
2. Yes, 29 is prime. 29 is not 1 or 2, it lands on 9, and it is not one of the Sneaky Six.
3. 47. 47 passes every check. 45 lands on 5, and 49 is one of the Sneaky Six.

7. Great Sky Show Race question cards

1. Prime. 11 lights only make one row.
2. 1 only has one factor, so 1 is not prime.
3. 2 is the smallest prime and the only even prime.
4. 21. 21 is odd, but it is not prime. 3 rows of 7 make 21.
5. Composite. 6 makes more than one row, so 6 is composite.
6. 19. 44 lands on 4, 39 is a Sneaky Six, and 19 passes every check.
7. 1 and 3. 3 can only be divided evenly by 1 and 3.
8. Composite. 20 lands on 0, an even digit, so it is composite.
9. 1. A prime number only makes one row.
10. Yes. The landing digit check has one exception: 5 itself is prime!

Step 3 (how sure?) has no right answer. A child who is right but "not sure" needs one more practice round. A child who is wrong but "very sure" has a mix-up worth talking about.

Pre-Flight Prime Check (numbers up to 50):

- 1) Is it 1? Not prime. 2) Is it 2? Prime. 3) Is the landing digit even, or 5? Not prime (except 5 itself). 4) Is it one of Buzz's Sneaky Six (9, 21, 27, 33, 39, 49)? Not prime. ★ Passed every check? It is prime!