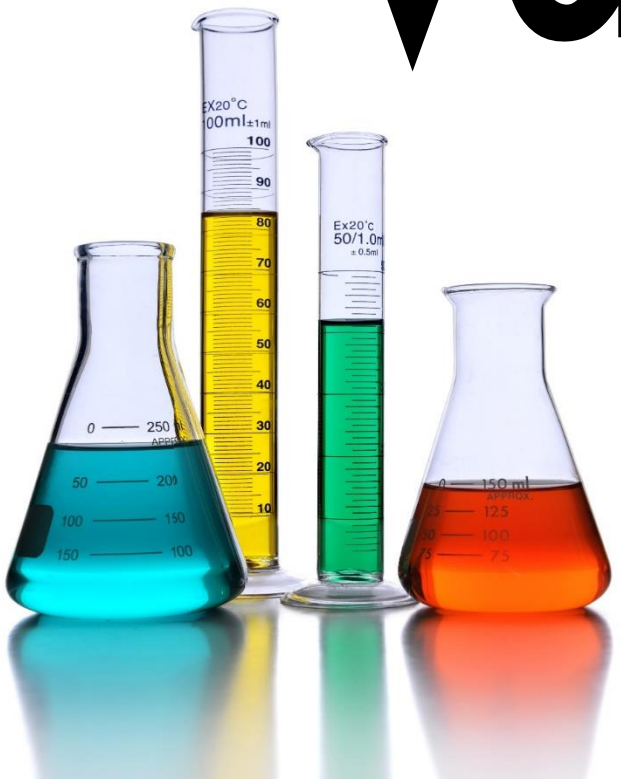
variables



- Independent
- Dependent
- Controlled

Science Task Cards

Table of Contents

The Basics

These task cards can be used individually, in pairs, small groups, or even whole group. There are 28 cards in hopes that you will have at least 1 per student if you need a class set. It is best if they are printed on card stock and laminated (color or B&W) for durability and repeated use.

A few possible uses :

•Place the cards around the room and let the students rotate

•Work in pairs and discuss

•Teach students to complete them when they finish an assignment early

•Send them home as homework for practice

•Use in centers

What the students do:

Students read each card carefully, then write their response on the Student Answers Recording Sheet (or notebook paper). If you want them to self-check, place a copy of the answers in a designated location or have students come to you to view the answer key. The recording sheets can also be collected and scored as an assessment.

These task cards are intended for practice or review of content that has already been taught.

Name:

Variables

Student Answer Recording Sheet

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28

Notes:

Name:

Variables

Student Answer Recording Sheet

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Notes:

Variables- ANSWER KEY

1 cause and effect	2 variables	3 independent, dependent, controlled	4 independent variable
5 valid	6 dependent variable	7 controlled variable	8 independent variable = brand
9 dependent variable = time	10 controlled variables = constants	11 a.	12 b.
13 c.	14 b.	15 c.	16 a.
17 c.	18 a.	19 b.	20 b.
21 c.	22 a.	23 b.	24 a.
25 c.	26 c.	27 b.	28 a.

VARIABLES

1

Experiments are a great way to observe cause and effect relationships.

By conducting an experiment, you are problem solving and looking for answers.

On your answer sheet, write cause and effect.

VARIABLES

2

When planning an experiment, you must always consider your **variables**.

In science, a variable is something that can be changed, controlled, or measured.

On your answer sheet, write variables.

VARIABLES

3

There are **3** types of scientific variables.

1. Independent (the cause)
2. Dependent (the effect)
3. Controlled (the constants)

On your answer sheet, write the 3 types of variables.

VARIABLES

4

The independent variable is what you are going to change and test.

When you test an independent variable, you collect data by recording what happened.

On your answer sheet, write independent variable.

VARIABLES

5

An experiment can only have **one** independent variable. This means that you should only change one factor at a time so that your results are valid.

Valid means accurate and reliable.

On your answer sheet, write valid.

VARIABLES

6

The **dependent variable** is what you measure or observe.

In a cause and effect relationship, the dependent variable is the **effect**.

On your answer sheet, write dependent variable.

VARIABLES

7

Controlled variables are the constant factors that **do not change** when conducting an experiment.

For example, if you are comparing the growth of two **different plants** to see which one grows taller, you must keep certain factors the same for both plants. The amount of water and sunlight they each receive should be the same.

Write controlled variables on your answer sheet.

VARIABLES

8

Independent variable example:

If you are testing 2 different battery brands to see which one lasts longer, your **independent** variable is the **brand** of battery because you are using different brands.

On your answer sheet, write:
independent variable = brand

VARIABLES

9

Dependent variable example:

If you are testing 2 different battery brands to see which one lasts longer, your **dependent** variable is the **amount of time** it takes to use up the batteries, because it depends on the brand.

On your answer sheet, write:
dependent variable = time

VARIABLES

10

Controlled variables example:

If you are testing 2 different battery brands to see which one lasts longer, one of your **controlled** variables could be the device you put the batteries in (ex. flashlight). You should use the same flashlight for each test to get valid results.

On your answer sheet, write:
controlled variables = constants

VARIABLES

11

Question to be tested:
Does warm water or cold water dissolve salt faster?

Which is the independent variable?
a. temperature of water
b. speed that salt dissolves
c. amount of water

On your answer sheet, write the letter of the correct answer.

VARIABLES

12

Question to be tested:
Does warm water or cold water dissolve salt faster?

Which is the dependent variable?
a. temperature of water
b. speed that salt dissolves
c. amount of water

On your answer sheet, write the letter of the correct answer.

VARIABLES

13

Question to be tested:

Does warm water or cold water dissolve salt faster?

Which is a controlled variable?

a. temperature of water
b. speed that salt dissolves
c. amount of water

On your answer sheet, write the letter of the correct answer.

VARIABLES

14

Question to be tested:

Which brand of laundry detergent works better to remove grass stains?

Which is the independent variable?

a. type of clothing
b. brand of detergent
c. cleanliness of the clothes

On your answer sheet, write the letter of the correct answer.

VARIABLES

15

Question to be tested:

Which brand of laundry detergent works better to remove grass stains?

Which is the dependent variable?

a. type of clothing
b. brand of detergent
c. cleanliness of the clothes

On your answer sheet, write the letter of the correct answer.

VARIABLES

16

Question to be tested:

Which brand of laundry detergent works better to remove grass stains?

Which is a controlled variable?

a. type of clothing
b. brand of detergent
c. cleanliness of the clothes

On your answer sheet, write the letter of the correct answer.

VARIABLES

17

Question to be tested:

Do tree frogs jump farther than blue dart frogs?

Which is the independent variable?

a. distance jumped
b. jumping conditions
c. type of frog

On your answer sheet, write the letter of the correct answer.

VARIABLES

18

Question to be tested:

Do tree frogs jump farther than blue dart frogs?

Which is the dependent variable?

a. distance jumped
b. jumping conditions
c. type of frog

On your answer sheet, write the letter of the correct answer.

VARIABLES

19

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Do tree frogs jump farther than blue dart frogs?

Which is a controlled variable?

a. distance jumped
b. jumping conditions
c. type of frog

On your answer sheet, write the letter of the correct answer.

VARIABLES

20

Question to be tested:

Do sunflowers grow taller in direct sunlight or partial sunlight?

Which is the independent variable?

a. type of flower
b. amount of sunlight
c. height of the sunflowers

On your answer sheet, write the letter of the correct answer.

VARIABLES

21

Question to be tested:

Do sunflowers grow taller in direct sunlight or partial sunlight?

Which is the dependent variable?

a. type of flower
b. amount of sunlight
c. height of the sunflowers

On your answer sheet, write the letter of the correct answer.

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22

Question to be tested:

Do sunflowers grow taller in direct sunlight or partial sunlight?

Which is a controlled variable?

a. type of flower
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c. height of the sunflowers

On your answer sheet, write the letter of the correct answer.

VARIABLES

23

Question to be tested:

Does the amount of water in a pot affect how fast it boils?

Which is the independent variable?

a. how fast the water boils
b. amount of water
c. temperature of stove

On your answer sheet, write the letter of the correct answer.

VARIABLES

24

Question to be tested:

Does the amount of water in a pot affect how fast it boils?

Which is the dependent variable?

a. how fast the water boils
b. amount of water
c. temperature of stove

On your answer sheet, write the letter of the correct answer.

VARIABLES

25

Question to be tested:

Does the amount of water in a pot affect how fast it boils?

Which is a controlled variable?

a. how fast the water boils
b. amount of water
c. temperature of stove

On your answer sheet, write the letter of the correct answer.

VARIABLES

26

Question to be tested:

Which type of ball rolls down a 3-foot ramp the fastest?

Which is the independent variable?

a. ramp height
b. speed ball rolls
c. type of ball

On your answer sheet, write the letter of the correct answer.

VARIABLES

27

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On your answer sheet, write <u>cause and effect</u>.

VARIABLES

When planning an experiment, you must always consider your **variables**.

In science, a variable is something that can be changed, controlled, or measured.

On your answer sheet, write <u>variables</u>.

VARIABLES

There are **3** types of scientific variables.

1. Independent (the cause)
2. Dependent (the effect)
3. Controlled (the constants)

On your answer sheet, write the 3 types of variables.

VARIABLES

The independent variable is what you are going to change and test.

When you test an independent variable, you collect data by recording what happened.

On your answer sheet, write <u>independent variable</u>.

VARIABLES

An experiment can only have **one** independent variable. This means that you should only change one factor at a time so that your results are valid.

Valid means accurate and reliable.

On your answer sheet, write valid.

VARIABLES

The **dependent variable** is what you measure or observe.

In a cause and effect relationship, the dependent variable is the **effect**.

On your answer sheet, write dependent variable.

VARIABLES

Controlled variables are the constant factors that **do not change** when conducting an experiment.

For example, if you are comparing the growth of two **different plants** to see which one grows taller, you must keep certain factors the same for both plants. The amount of water and sunlight they each receive should be the same.

Write controlled variables on your answer sheet.

VARIABLES

Independent variable example:

If you are testing 2 different battery brands to see which one lasts longer, your **independent** variable is the **brand** of battery because you are using different brands.

On your answer sheet, write:
independent variable = brand

VARIABLES

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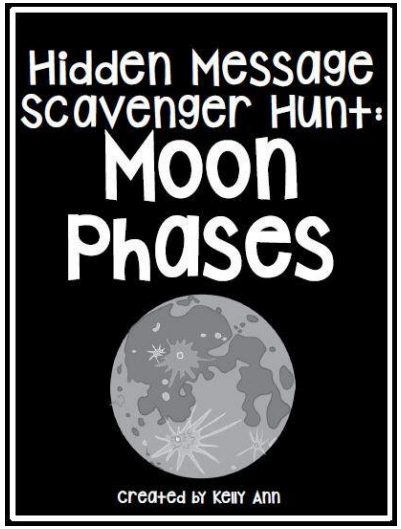

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Created by Kelly Ann in His name

Enjoy!

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