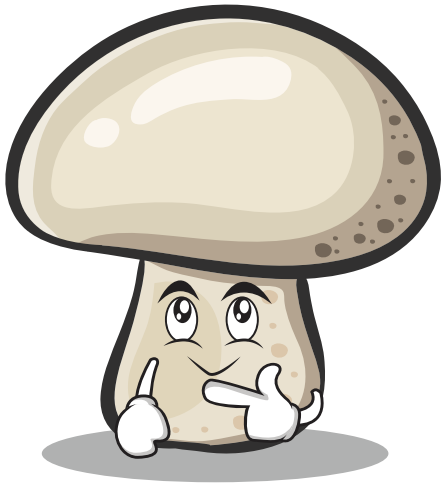
Graphing Growth Rates Over Time

Use the following two sets of data to graph the growth of different organisims over time.

Organism 1							
Time (days)	7	35	63	91	112	133	154
Mass (g)	3	9.5	26.8	48.2	65.6	81.7	98.4

Organism 2							
Time (days)	7	21	35	42	49	56	63
Mass (g)	0.19	0.94	2.19	2.91	3.51	4.11	4.69



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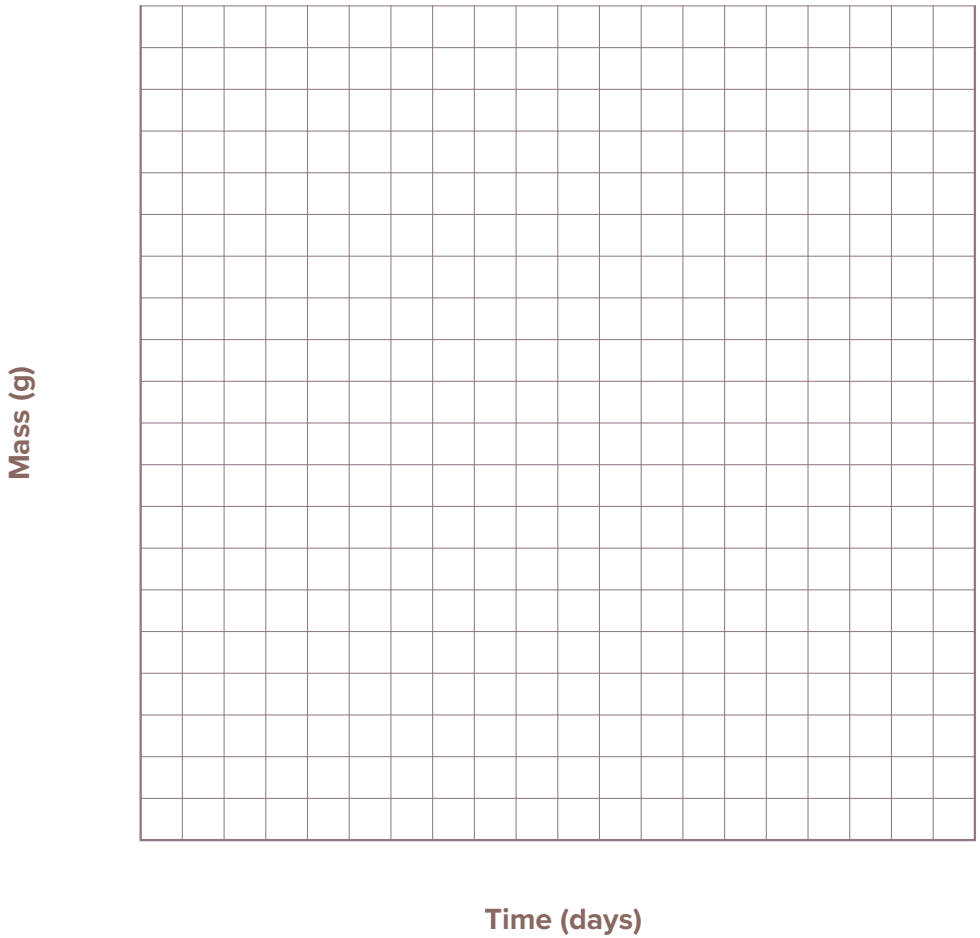
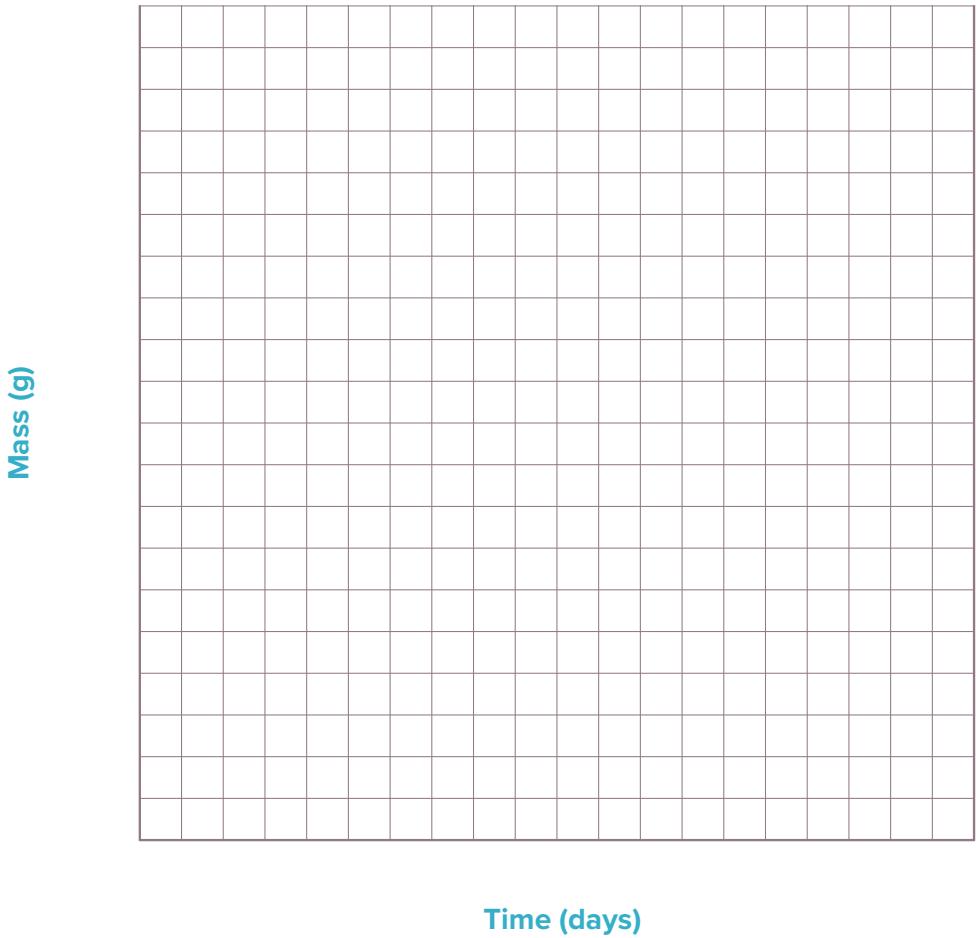
Graphing Growth Rates Over Time (cont.)

Organism 1



Organism 2



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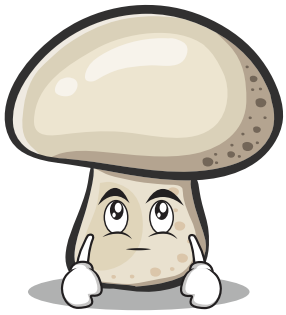
How Mushrooms Are Grown



Scan the QR code or click on the link to learn about the seven steps of how mushrooms are grown. Record your findings below.

- **The 7 Basic Steps Of Mushroom Cultivation (How Most Mushrooms Are Grown) https://ytube.io/3XIb**

Step 1 Mushroom Culture

Step 2 Sterilised Grain

Step 3 Expanding Spawn

Step 4 Bulk Substrate

Step 5 Colonisation

Step 6 Pinning

Step 7 Fruiting and Harvesting

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Commercial Mushroom Growing

Use the sources of information below to complete the following questions about the commercial production of the *Agaricus bisporus* mushroom:

a. **Basic Procedures for Agaricus Mushroom Growing** https://bityl.co/FS6r

b. **Mountain View Mushrooms | Mushroom Cultivation | Mushroom Production | Utah Farming Business** (2:58) https://ytube.io/3XIh

1. What is the primary ingredient for making compost?

   _____

2. How long does the composting process take? _____

3. What other abiotic factors are added to the compost?

   _____

4. What is the role of pasteurisation?

   _____

   _____

   _____

5. How long does it take for spawn to grow in the compost? _____

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Commercial Mushroom Growing (cont.)

6. What is the function of the casing layer?

7. What three abiotic factors are controlled during the mushroom growing phase?

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First-Hand Mushroom Growth Data Collection

1. Measure the average growth of the mushrooms over time. Record the collected data in the table below:

Growth of mushrooms over time

Time (Hours/days)							
Mass (g)							
Circumference of cap (cm)							
Mushroom height (cm)							

2. Use the graph paper below to plot your data:

Mass (g)

Time (days)

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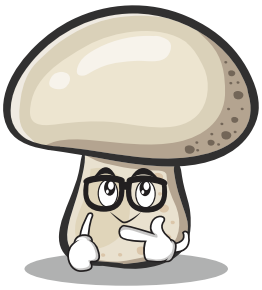
Scientific Investigation Template



1. We are investigating:

2. The variables we could change are:

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Scientific Investigation Template (cont.)

3. We could qualitatively observe or quantitatively measure:

4. We will change:

So that we can measure/ observe:

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Scientific Investigation Template (cont.)

5. **Our aim is to:**

6. **Equipment list:**

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Scientific Investigation Template (cont.)

7. To make this investigation a fair test, we will make sure that we control the following variables:

8. Our hypothesis for this investigation is:

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Scientific Investigation Template (cont.)

9. **Method:**

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Scientific Investigation Template (cont.)

10. Experimental setup:

11. Risks: ☐ **Yes** (provide details below) ☐ **No**

12. Risk assessment required: ☐ **Yes** ☐ **No**

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Scientific Investigation Template (cont.)

13. **Results:**

14. **Written results:**

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Reviewing an Investigation

15. If we performed this experiment again, we would change:

16. The **independent** variable was...

Remember:
*"**I**" control the **I**NDEPENDENT variable*

17. The **dependent** variable was...

Remember:
I cannot control the DEPENDENT variable

18. Our hypothesis was: ☐ **Supported** ☐ **Not supported**

19. In conclusion:

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Average Mushroom Mass

Use the table below to record the mass of each mushroom in your sample, then calculate the average mass and record the value in the table.

Mushroom	Mass (g)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
Average	

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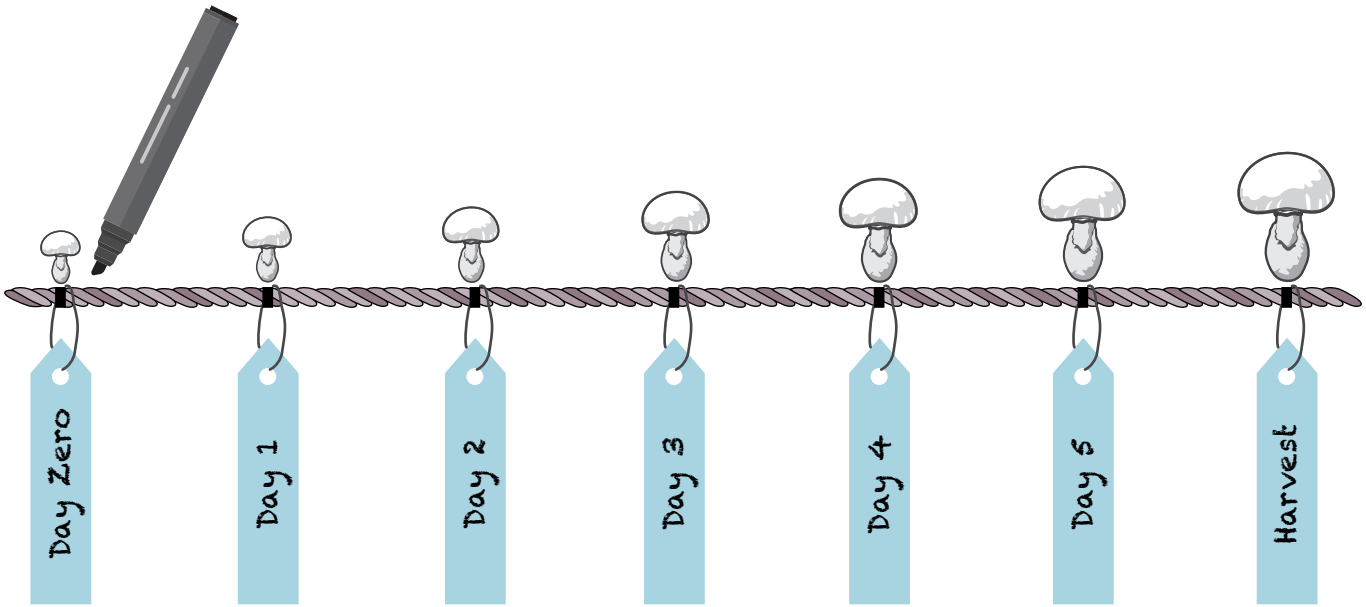
Modelling Mushroom Growth

1. **The table below shows an example of the mass of a growing mushroom over time.**

Mushroom Growth							
Time (Hours/Days)	0/0	24/1	48/2	72/3	96/4	120/5	144/6
Mass (g)	0.625	1.25	2.5	5	10	20	40

2.
- Equally divide your string to represent the number of days taken for a mushroom to fully mature.
- Label each section of the string to represent the day or hours.
- Measure a mass of craft material, such as playdough, to represent each mushroom. You may need to scale this up e.g. multiply each mass by the same factor.
- Add your model mushrooms to the string timeline.



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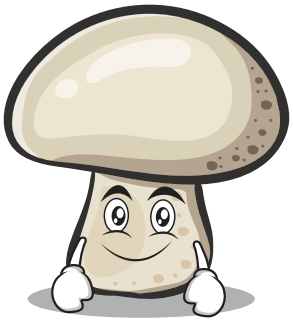
Graphing Mushroom Growth



Use the graph paper below to graph your collected data from Worksheet 4.6 – Average Mushroom Mass.

Mass (g)

Time (Hours/Days)

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