Investigating the relationship between the **light intensity** and the growth of plants and fungi

Group 6

Background information

- **Light intensity** – is the a measure of light.
- It affects the behaviour of many organisms.
- Plant – is a group of living organisms including flowering plants, ferns and mosses etc.
- Mosses harvest sunlight for photosynthesis
- Fungi – is a group of eukaryotic organisms including mushroom.
- Mushrooms decomposes the organic matters to inorganic nutrients.

Method of investigation

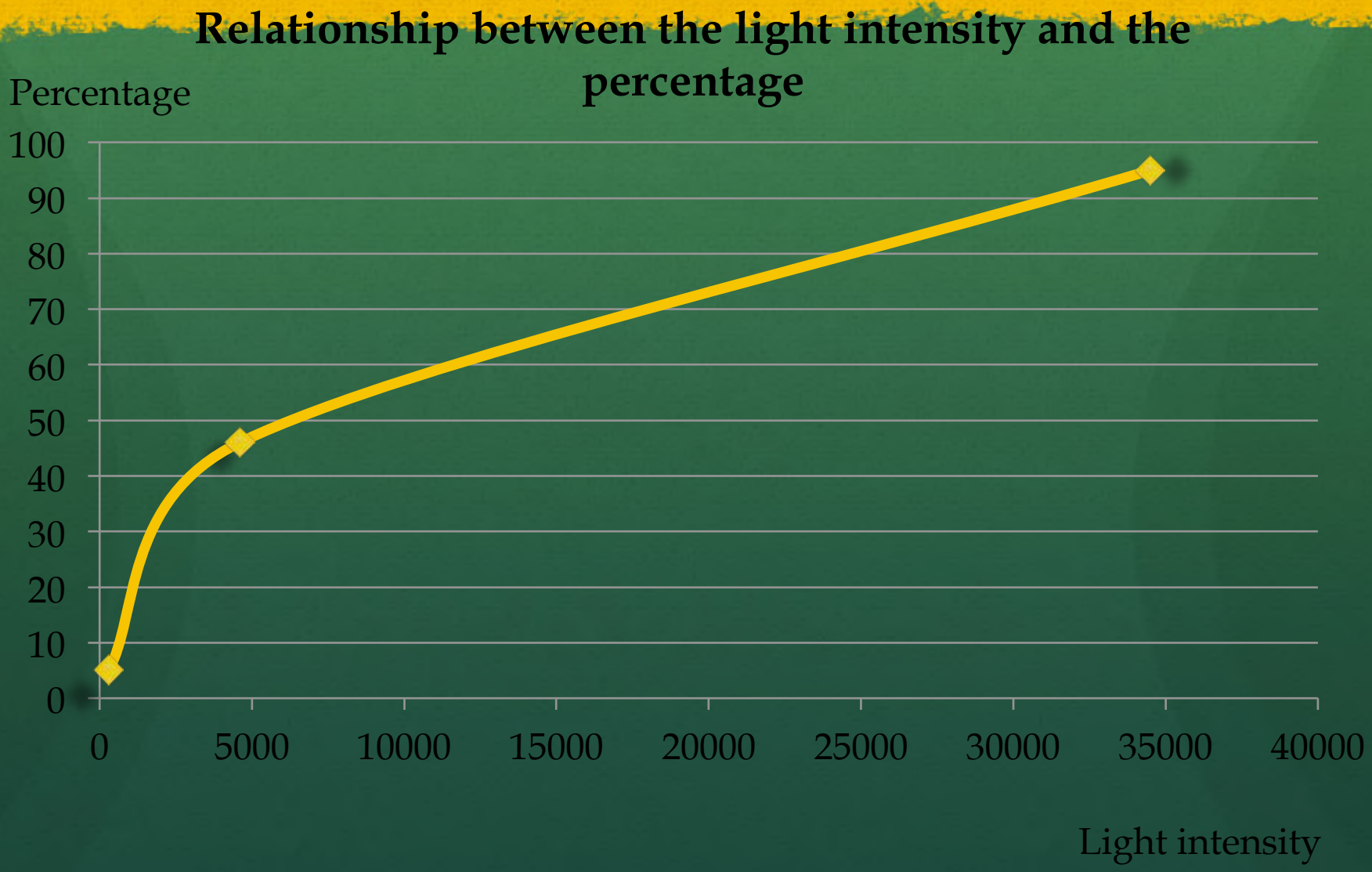
- Mosses are investigated for representing Plants.
- Mushrooms are investigated for representing Fungi.
- We measured the light intensity of each quadrat by light meter.
- We measured the density of mosses or mushrooms by quadrat.
- Hence, we investigate the relationship between light intensity and their growth.

Mosses

	Quadrat 1	**Quadrat 2**	**Quadrat 3**
Light intensity (Lux)	34500	4600	303
Approximate percentage (Surface area of mosses/ Total area in quadrat X100%)	95%	46%	5%

According to the table, we discovered the higher the light intensity, the greater the surface area of mosses .

Mosses


Relationship between the light intensity and the percentage
Percentage
100
90
80
70
60
50
40
30
20
10
0
0
5000
10000
15000
20000
25000
30000
35000
40000
Light intensity

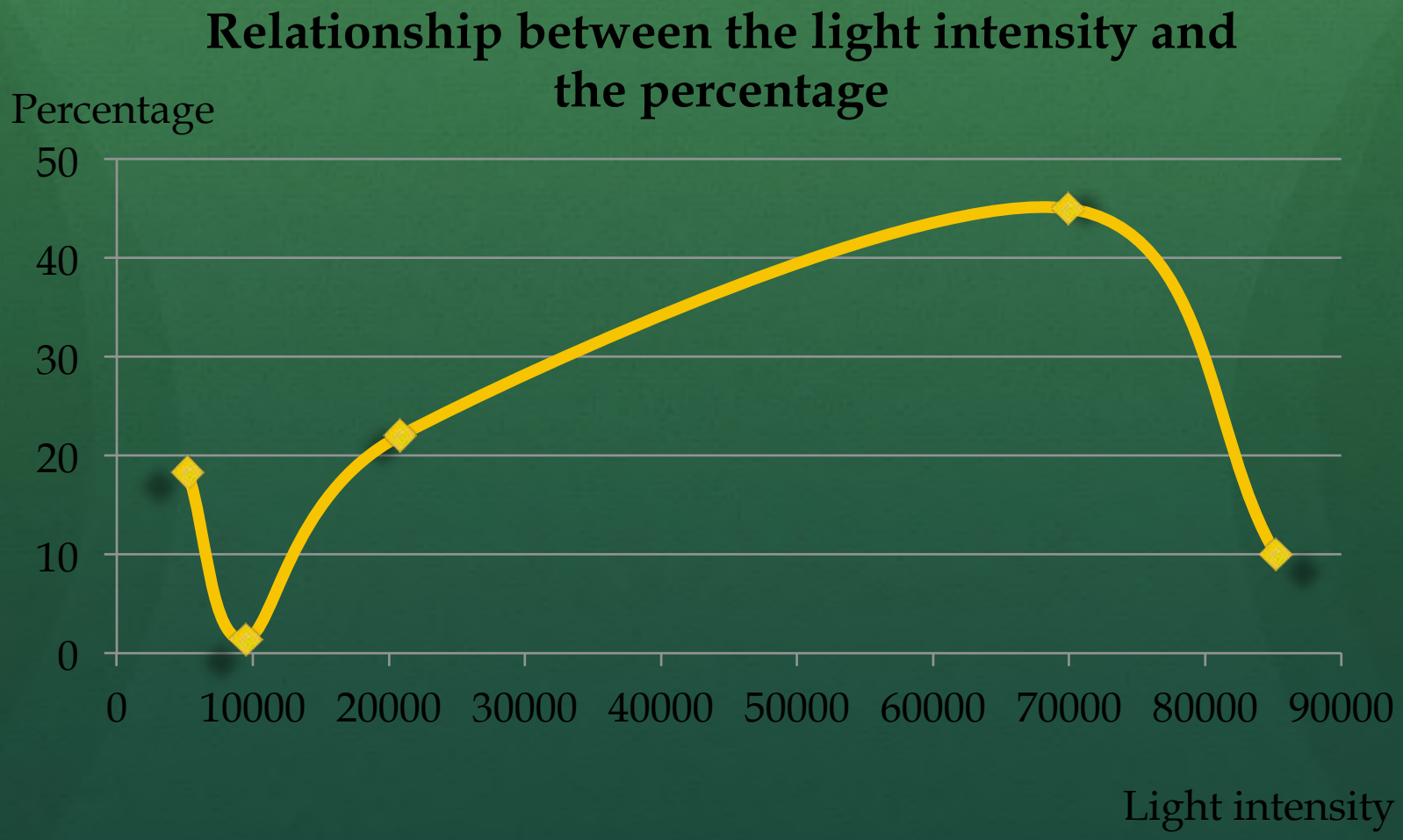
Mosses

- When the light intensity increases, more energy is provided to the mosses.
- More energy is provided for the light-dependent reaction of the mosses so the rate of photosynthesis is increased.
- Since the rate of photosynthesis is increased, more food can be produced and provided for its growth.
- Therefore, the rate of growth of the mosses is increased.

Mushrooms

	Quadrat 1	**Quadrat 2**	**Quadrat 3**	**Quadrat 4**	**Quadrat 5**
Light intensity (Lux)	20800	85200	9470	5200	69900
Approximate percentage (Surface area of mosses/ Total area in quadrat X100%)	22	10	1.39	18.33	45

Mushrooms


Relationship between the light intensity and the percentage
Percentage
50
40
30
20
10
0
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
Light intensity

Mushrooms

- The graph has an irregular shape.
- It shows that there is no relationship between the light intensity and the growth of mushrooms.
- It is because Fungi(mushrooms) do not undergo photosynthesis, light is not needed for its nutrition.
- Fungi decompose organic matters to inorganic matters for nutrition.
- Therefore, there is no relationship. Light intensity is not a main abiotic factor affecting the growth of plant.

Errors and improvements

- The investigation only takes place at 3 to 5 quadrats, which may be not enough for obtaining very accurate results.
- The light intensity at a place varies with time so the results may not be absolute accurate.
- There is also other abiotic factors such as temperature and relative humidity, the results may be affected by those factors. This can be improved by a controlled experiment.

The End

Thank you!