

# JBI101: How Do Plants Grow

## Pittsburgh School ABC

### Do NOT put your name here

#### Purpose

Find the best window to grow healthy plants in the winter

Investigate the effect of sunlight on the growth of bean plants

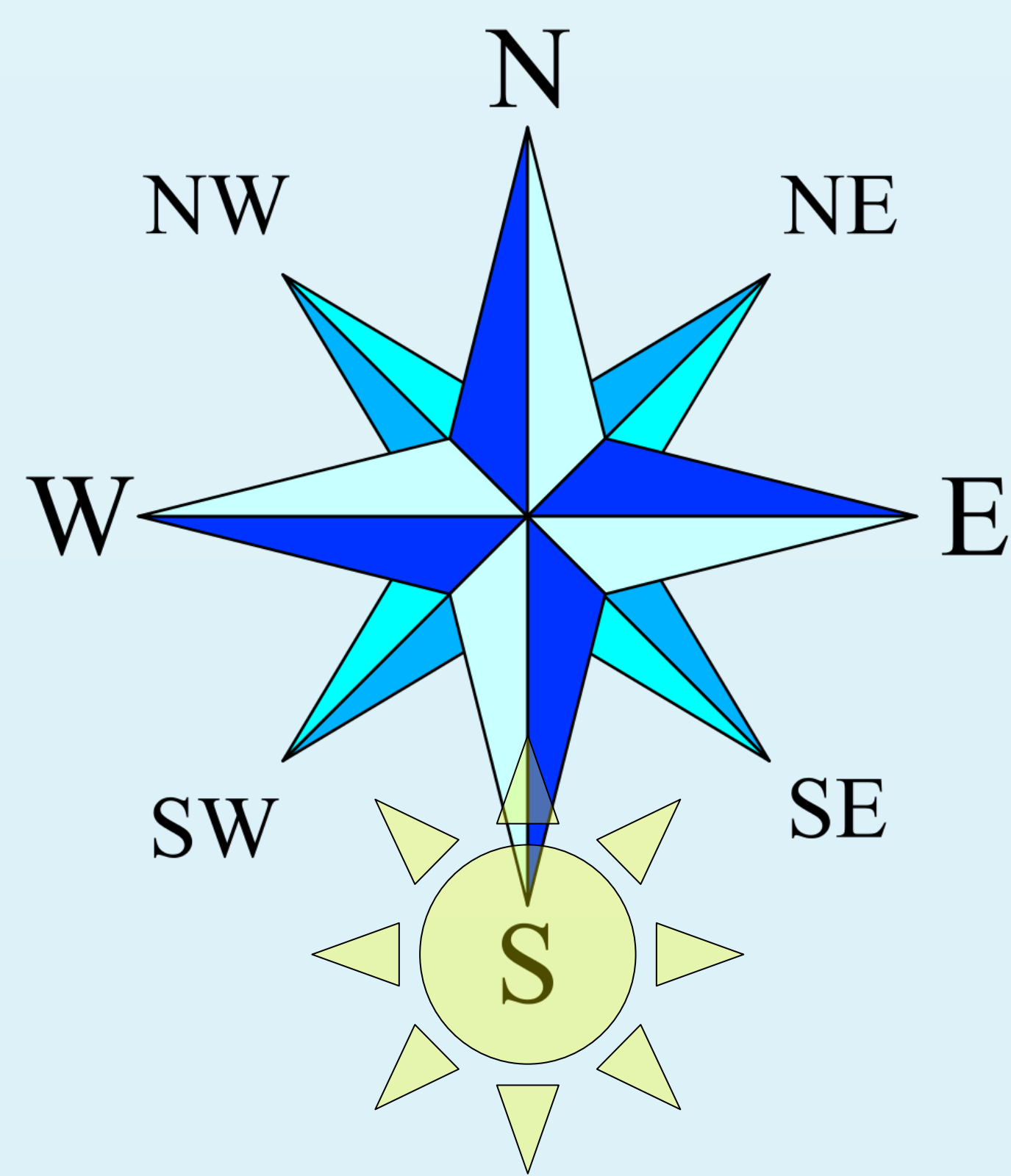
Grow plants with different amounts of sunlight on north, south, east and west facing windowsills



#### Hypothesis

My research question: Does plant growth as measured by plant height differ based on the direction the sunlight comes from?

My hypothesis: Plants placed in south facing windows will grow taller than plants placed in windows facing other directions.



#### Procedure

1. Plant 20 lima bean seeds in recycled cardboard egg cartons using Miracle Grow potting soil
2. Place 4 plants on each windowsill (north, south, east and west-facing). Place the last 4 plants under a controlled LED grow light.
3. Water plants with 1 teaspoon of water a week
- 4 Measure the height of each plant height once a week with a ruler

Independent variable: quality of the light source / where I put each plant.

Dependent variable: the height of the plant

Control group: LED light plants

#### Results

The plants in the south facing window grew taller than the plants in the other windows. This means that the commonly held beliefs are likely correct.

Questions:

Did the unusually cloudy winter stunt plant growth?

Would different types of plants react the same way?

Why did the LED grow light make the plants bigger than sunlight did?

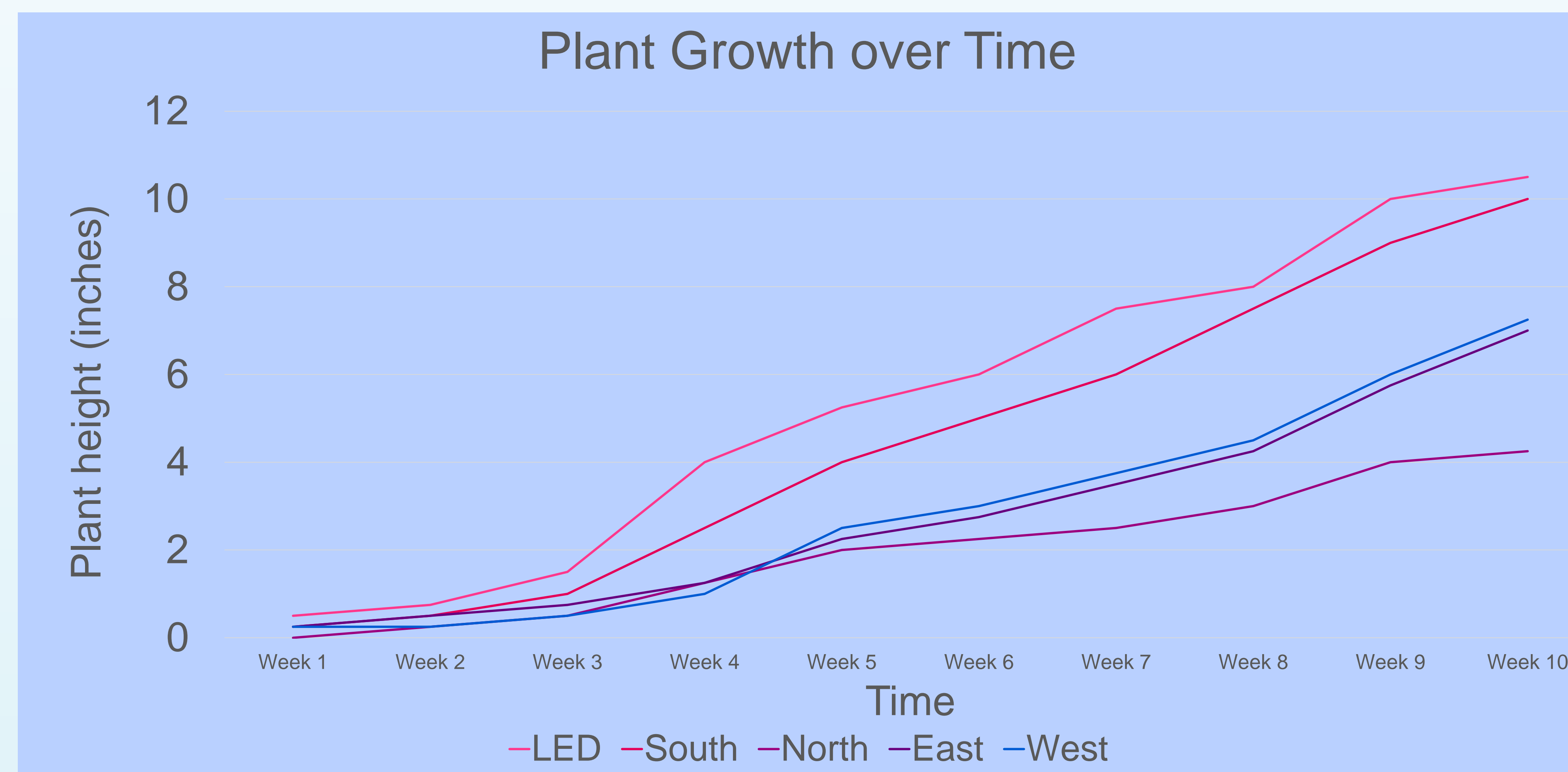


Chart 1. Plant Growth over Time

	LED	South	North	East	West
Week 1	0.5	0.25	0	0.25	0.25
Week 2	0.75	0.5	0.25	0.5	0.25
Week 3	1.5	1	0.5	0.75	0.5
Week 4	4	2.5	1.25	1.25	1
Week 5	5.25	4	2	2.25	2.5
Week 6	6	5	2.25	2.75	3
Week 7	7.5	6	2.5	3.5	3.75
Week 8	8	7.5	3	4.25	4.5
Week 9	10	9	4	5.75	6
Week 10	10.5	10	4.25	7	7.25

Table 1. Plant Growth Over Time



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#### Conclusions

South facing light is superior to north, east and west facing light for plant growth in house plants.

I should I put my plants on a south facing windowsill to make them healthy.

Further applications: Gardeners should make sure their house plants have as much south facing light as possible

Big farmers who grow food for food stores should make sure their crops have south facing light.