

Seasonal Changes Task Information

Grade: Biology

Content:

- MST Framework - Standard 4 - The living Environment
- Regents Biology - Unit II - Maintenance in Living things
Topic V - Regulation
Unit VII - Ecology

Format: Paper/pencil

Purpose: The student will interpret data on plant blooming patterns.

Skills:

Primary: Interpreting data
Secondary: Inferring & Generalizing

Time: 15 minutes

Materials:

- test sheets

Preparation: none

Safety: none

Extensions/Modifications: none

Seasonal Changes

Task: At this station, you will be interpreting seasonal data concerning the blossoming pattern of certain plants.

Directions

1. Read the information below which describes data collected for a scientific experiment.
2. When you are finished, answer questions 1 through 3 on your answer sheet.

THE EXPERIMENT

Each year, students in the biology classes at a local high school are required to keep wildlife journals. One of the necessary observations is a record of how seasonal changes in the area influence plant and animal populations. Information about three different plant species was taken from the last four years of journals, pooled and recorded in chart form. It seems that each spring, students recorded when dandelions, Trout lily, and violets blossomed in the nature area adjacent to the school.

Flower Key

Symbol	Flower Name
☼	Dandelion
J	Trout Lily
✿	Violet

The chart below shows when students recorded the appearance of flowers for the above species over a three year period. Dandelion information for year four has been omitted.

Years	Early March	Late March	Early April	Late April	Early May	Late May	Early June	Late June
Year 1		✿ J	☼ ✿ J	☼ ✿ J	☼ ✿ J	☼ ✿	☼ ✿	☼
Year 2				✿ J	☼ ✿ J	☼ ✿ J	☼ ✿ J	☼ ✿
Year 3				✿ J	☼ ✿ J	☼ ✿ J	☼ ✿	☼ ✿
Year 4			✿ J	✿ J	✿ J	✿ J	✿	✿

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Seasonal Changes - Scoring Rubric

Maximum score - 11 points

Question 1 Blooming Patterns

5 points total

- Allow one point for each of the correct patterns up to 4 points.

Samples of acceptable patterns

- Trout lilies & violets start to flower at the same time
- Violets have a longer flowering period than trout lilies
- The flowering time of both is not at the same time each year.
- Allow 1 point if all the correct statements are written in complete sentences.
- No credit should be given if statements are incorrect even if they are in complete sentences.

Question 2 Fourth year dandelion bloom

3 points total

Prediction

1 point total

- Allow 1 point for completing the chart indicating start in late April and continuing through late June

Explanation

2 points total

- Allow 2 points an explanation based on the data using complete sentences.

Sample explanation

- The dandelions were always blossoming one time period before the violets and trout lilies in the first three (3) years.
- Allow 1 point for an explanation based on the data, but not written in complete sentences.
- No credit for an incorrect explanation even if it is written in complete sentences.

Question 3 Factor that affect flowering time

3 points total

- Allow 2 points if the student describes two (2) acceptable environmental factors
- Allow 1 point if the student describes one (1) environmental factor

*** Allow 1 point if **all** of the correct factors are written in complete sentences.

- No credit for inappropriate environmental factors even if they are written in complete sentences.

Highest possible Score - 11 points

Student ID _____ Scoring Form - Seasonal Changes
Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- | | | | | | | | |
|----|----------------------------|---|---|---|---|---|---|
| 1. | Patterns identified | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. | Dandelion bloom - 4th year | | | | | | |
| | Prediction | 0 | 1 | | | | |
| | Explanation | 0 | 1 | 2 | | | |
| 3. | Environmental factors | 0 | 1 | 2 | 3 | | |

Total Score _____
Total possible score 11 points

Student ID _____ Scoring Form - Seasonal Changes
Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- | | | | | | | | |
|----|----------------------------|---|---|---|---|---|---|
| 1. | Patterns identified | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. | Dandelion bloom - 4th year | | | | | | |
| | Prediction | 0 | 1 | | | | |
| | Explanation | 0 | 1 | 2 | | | |
| 3. | Environmental factors | 0 | 1 | 2 | 3 | | |

Total Score _____
Total possible score 11 points

Student ID _____ Scoring Form - Seasonal Changes
Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

- | | | | | | | | |
|----|----------------------------|---|---|---|---|---|---|
| 1. | Patterns identified | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. | Dandelion bloom - 4th year | | | | | | |
| | Prediction | 0 | 1 | | | | |
| | Explanation | 0 | 1 | 2 | | | |
| 3. | Environmental factors | 0 | 1 | 2 | 3 | | |

Total Score _____
Total possible score 11 points