# Formation of Rain
## Task Information

**Subject:** Earth Science

**Content:**

- NYS Syllabus (1970 ed.) Topic VII C
- Earth Science Syllabus (Pro. Mod.) (1993 ed.) - Unit 6 - Meteorology
- Framework Standard 4 Science - Interactions of air, water, and land components.
- Middle Level Science Block E Section V - Water in the atmosphere

**Format:** Paper/pencil

**Purpose:**

To assess the student's ability to correctly sequence the steps leading to the formation of rain.
To design a model to represent these steps.

**Skills:**

**Primary:** Classifying, generalizing/inferring
**Secondary:** Interpreting data, communication

**Time:** 10 minutes

**Materials:**

| Teacher | per Student |
|---|---|
| index cards | set of rain formation cards |
| markers | pencils, markers, or crayons |

**Preparation:**

- The teacher must design sets of eight index cards with a letter and a statement describing a step in rain formation on each card. Write or type each of the following statements and its corresponding letter on separate index cards.
  - **A** Tiny cloud droplets collect together to form raindrops large enough to fall.
  - **B** The Sun's rays warm the Earth.
  - **C** Cool air is warmed and becomes less dense.
  - **D** Air is cooled to its dew point temperature and the water vapor in the air begins to condense.
  - **E** The Earth radiates heat which warms the air.
  - **F** Air rising in the atmosphere expands causing lower air pressure.
  - **G** Air that expands decreases in temperature.
  - **H** Air, which is less dense, rises.
  - One set of cards per student.
  - Cards can be laminated or covered to be reused.

**Safety:** N/A

**Extensions/Modifications:**

Students could watch weather reports and identify stages mentioned on cards. Students could examine processes which are severe versions of these steps, such as monsoons, thunderstorms, and blizzards.

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# Formation of Rain

**Task:** At this station, you will determine the sequence of events in the formation of rain.

## Materials

- 8 "rain" cards

## Directions

Each of the eight index cards you have been given has written on it a letter and a statement describing one of the events leading to the formation of rain.

1. Spread the cards out on your desk, and read each statement carefully.
2. Arrange the cards in the order in which they occur to result in the formation of rain. Assume that there is an abundant supply of water vapor already in the air.
3. When you are satisfied with your arrangement, record in the blanks below the letters on the cards in the order you have placed them.

Answers: _____ _____ _____ _____

(First Event)

_____ _____ _____ _____

(Last Event)

4. In the space below, draw a diagram representing the steps leading to the formation of rain. Label each event on your diagram with letters and terms from the sequence cards. Be sure to include all of the eight events in your diagram.

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# Formation of Rain - Scoring Rubric

## Maximum Score - 11 points

**Tasks 1-2 Directions** — **No Credit**

**Task 3.** — **3 points total**

**Standard:** The student arranges the cards in the correct sequence.

**Criteria:**

The correct sequence is **B - E - C - H - F - G - D - A**

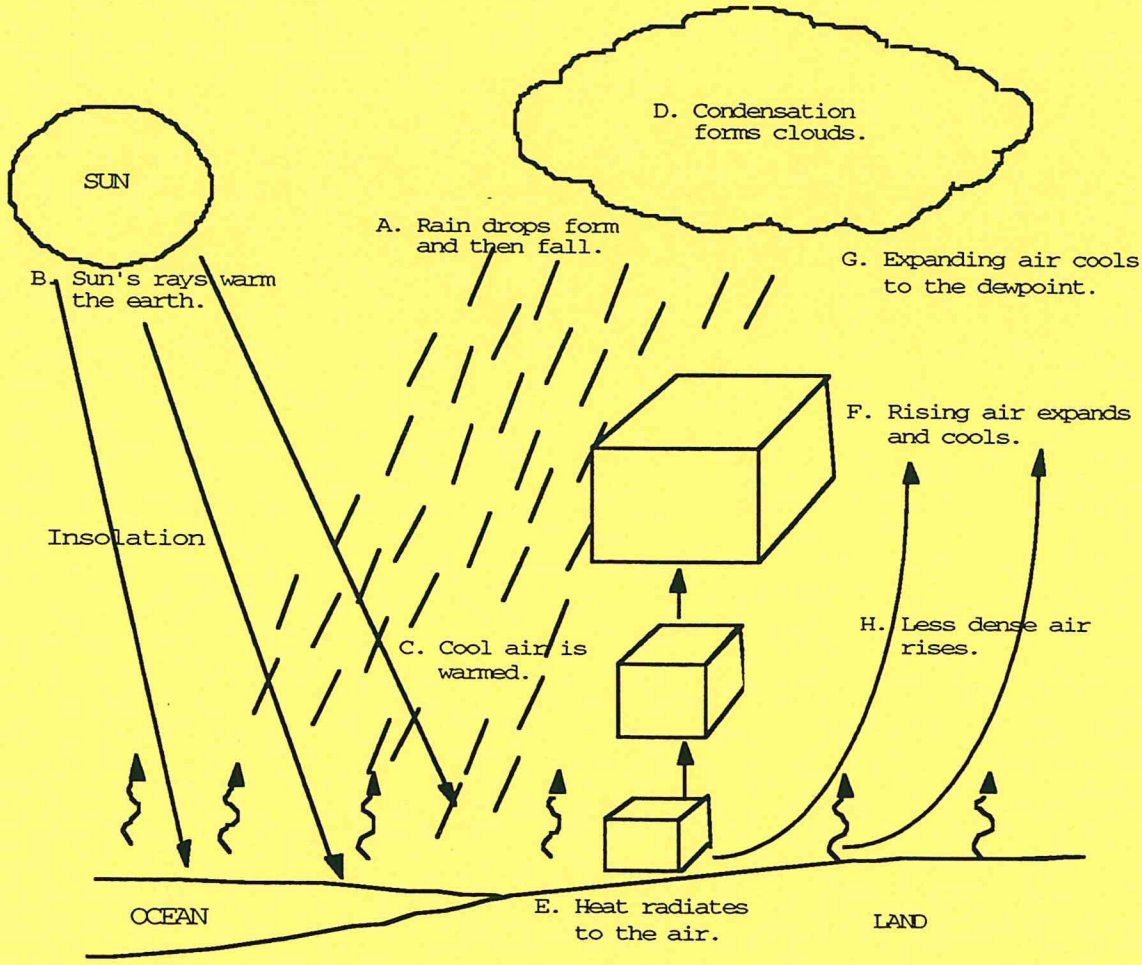
- Allow 3 points if the student has all steps in the correct order.
- Allow 2 points if the student has 1 or 2 steps out of order.
  Ex: Sequence **C - B - E - H - F - G - D - A** has <u>one</u> step out of order (C is misplaced)
- Allow 1 points if the student has 3 steps out of order.
- Allow 0 points for the incorrect sequencing of 4 or more steps.

**Task 4** — **8 points total**

**Standard:** The student will apply knowledge of processes to construct a drawing which illustrates these steps in the formation of rain.

**Criteria:**

- Allow 1 point for each event




**Highest possible score - 11 points**

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**Student ID** _____ **Formation of Rain - Scoring Form**

**Male or 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.

3. Sequencing of cards 0 1 2 3

4. Diagram 0 1 2 3 4 5 6 7 8

**Total Score** _____
Total Possible score - 11 points

**Student ID** _____ **Formation of Rain - Scoring Form**

**Male or 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.

3. Sequencing of cards 0 1 2 3

4. Diagram 0 1 2 3 4 5 6 7 8

**Total Score** _____
Total Possible score - 11 points

**Student ID** _____ **Formation of Rain - Scoring Form**

**Male or 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.

3. Sequencing of cards 0 1 2 3

4. Diagram 0 1 2 3 4 5 6 7 8

**Total Score** _____
Total Possible score - 11 points

**Student ID** ES F of A #1 **Scoring Form - Formation of Rain**

**Male or 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.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3. Sequencing of cards | 0 | 1 | (2) | | | | | | |
| 4. Diagram | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | (8) |

**Total Score** 11

(Total Possible score - 11 points)

# Formation of Rain

Task: At this station, you will determine the sequence of events in the formation of rain.

MATERIALS

1 set of index cards

DIRECTIONS

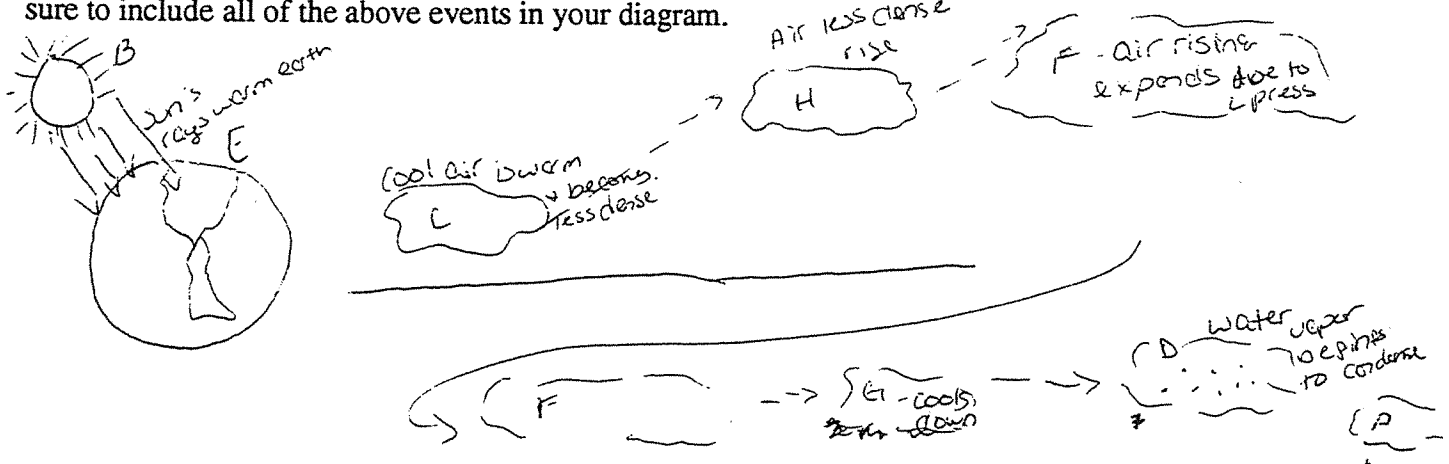
Each of the eight index cards you have been given has written on it a letter and a statement describing one of the events leading to the formation of rain.

Spread the cards out on your desk, and read each statement carefully. Arrange the cards in the order in which the events occur to result in the formation of rain. Assume that there is an abundant supply of water vapor already in the air.

When you are satisfied with your arrangement, record in the space below the letters on the cards in the order you have placed them.

| | | | |
|---|---|---|---|
| B | E | C | H |
| (First event) | (Second event) | (Third event) | (Fourth event) |
| F | G | D | A |
| (Fifth event) | (Sixth event) | (Seventh event) | (Last event) |

On your answer sheet draw a diagram representing the steps leading to the formation of rain. Label each event shown on your diagram with card letter and terms which describe the event. Be sure to include all of the above events in your diagram.

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**Student ID** ES Fof1 #1 **Scoring Form - Formation of Rain**

**Male or 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.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3. Sequencing of cards | 0 | 1 | 2 | (3) | | | | | |
| 4. Diagram | 0 | 1 | 2 | 3 | 4 | 5 | (6) | 7 | 8 |

**Total Score** 9

(Total Possible score - 11 points)

E S F of A #11

# Formation of Rain

Task: At this station, you will determine the sequence of events in the formation of rain.

51%

+9/11

## MATERIALS

1 set of index cards

## DIRECTIONS

Each of the eight index cards you have been given has written on it a letter and a statement describing one of the events leading to the formation of rain.

Spread the cards out on your desk, and read each statement carefully. Arrange the cards in the order in which the events occur to result in the formation of rain. Assume that there is an abundant supply of water vapor already in the air.

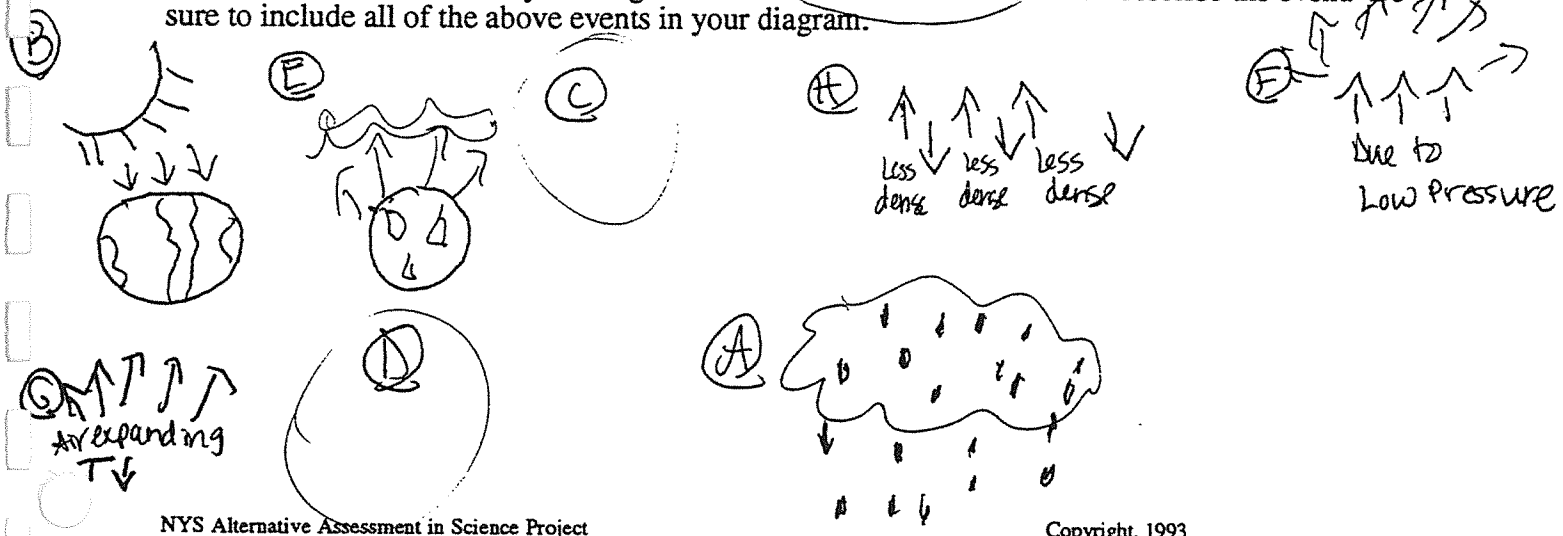
+3 When you are satisfied with your arrangement, record in the space below the letters on the cards in the order you have placed them.

| B | E | C | H |
|---|---|---|---|
| (First event) | (Second event) | (Third event) | (Fourth event) |

| F | G | D | A |
|---|---|---|---|
| (Fifth event) | (Sixth event) | (Seventh event) | (Last event) |

+6

On your answer sheet draw a diagram representing the steps leading to the formation of rain. Label each event shown on your diagram with card letter and terms which describe the event. Be sure to include all of the above events in your diagram.

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**Student ID** ESFofA #3 **Scoring Form - Formation of Rain**

**Male or 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.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3. Sequencing of cards | 0 | 1 | (2) | 3 | | | | | |
| 4. Diagram | 0 | 1 | 2 | 3 | (4) | 5 | 6 | 7 | 8 |

**Total Score** 6

(Total Possible score - 11 points)

# Formation of Rain

Task: At this station, you will determine the sequence of events in the formation of rain.

MATERIALS

1 set of index cards

DIRECTIONS

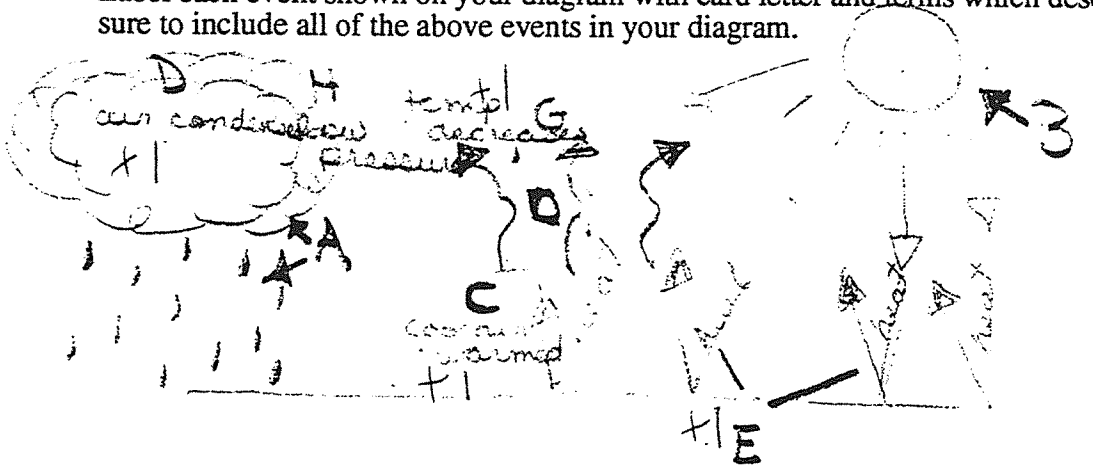
Each of the eight index cards you have been given has written on it a letter and a statement describing one of the events leading to the formation of rain.

Spread the cards out on your desk, and read each statement carefully. Arrange the cards in the order in which the events occur to result in the formation of rain. Assume that there is an abundant supply of water vapor already in the air.

When you are satisfied with your arrangement, record in the space below the letters on the cards in the order you have placed them.

| | | | |
|---|---|---|---|
| B | F | C | H |
| (First event) | (Second event) | (Third event) | (Fourth event) |
| G | F | D | A |
| (Fifth event) | (Sixth event) | (Seventh event) | (Last event) |

On your answer sheet draw a diagram representing the steps leading to the formation of rain. Label each event shown on your diagram with card letter and terms which describe the event. Be sure to include all of the above events in your diagram.

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**Student ID** ESFofA #9 **Scoring Form - Formation of Rain**

**Male or 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.

3. Sequencing of cards 0 1 (2) 3

4. Diagram (0) 1 2 3 4 5 6 7 8

**Total Score** 2

(Total Possible score - 11 points)

ESFofA #9

# Formation of Rain

Task: At this station, you will determine the sequence of events in the formation of rain.

fine start 1:07
f. F → 1:15

MATERIALS

1 set of index cards

DIRECTIONS

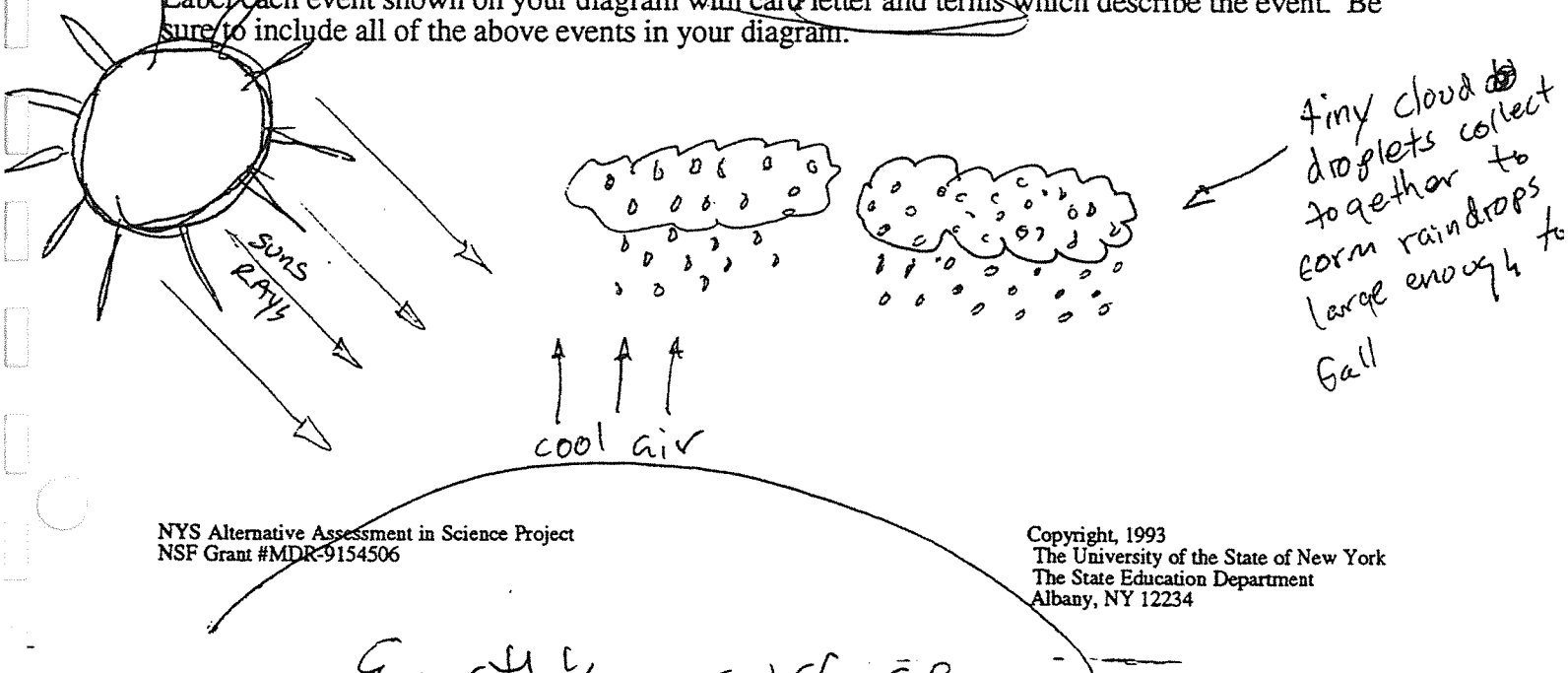
Each of the eight index cards you have been given has written on it a letter and a statement describing one of the events leading to the formation of rain.

Spread the cards out on your desk, and read each statement carefully. Arrange the cards in the order in which the events occur to result in the formation of rain. Assume that there is an abundant supply of water vapor already in the air.

When you are satisfied with your arrangement, record in the space below the letters on the cards in the order you have placed them.

| | | | |
|---|---|---|---|
| B | E | C | F |
| (First event) | (Second event) | (Third event) | (Fourth event) |
| G | H | D | A |
| (Fifth event) | (Sixth event) | (Seventh event) | (Last event) |

On your answer sheet draw a diagram representing the steps leading to the formation of rain. Label each event shown on your diagram with card letter and terms which describe the event. Be sure to include all of the above events in your diagram.

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