



Maine
Department of
Education

GRADE

8

Maine Science Assessment

Released Items (2024)



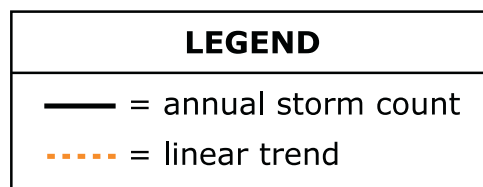
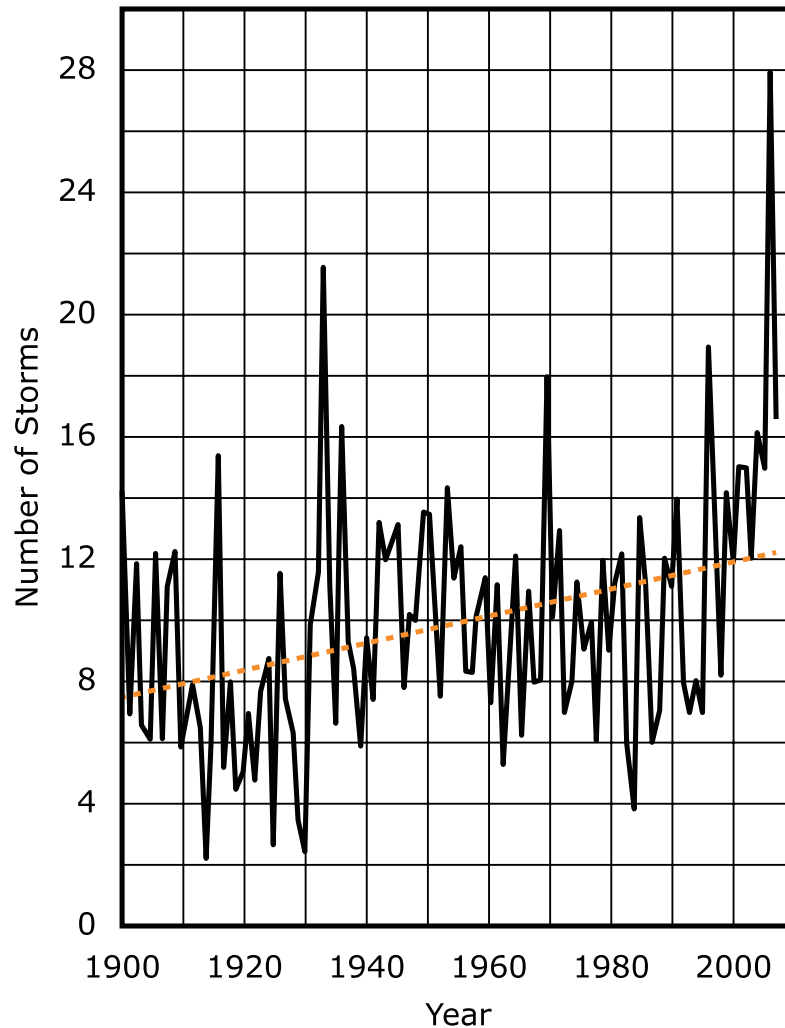
New Meridian

Use the information from Hurricanes to answer **questions 1–5**.

Hurricanes

Courtney and Michael are in Miami, Florida, preparing their property for a hurricane. To protect their house from flooding, they place sandbags around the doors and board up the windows. Michael states that this is the most in any given year they have needed to prepare their property for hurricanes. They discuss Michael's observation and wonder if the increase in the number of hurricanes each year is related to global warming. They look for data and find this graph.

Atlantic Hurricanes and Tropical Storms



They discuss Michael's observation and wonder if the increase in the number of hurricanes each year is related to global warming.

1. There were 20 named hurricanes in 1933, which set the record for the most named storms in a season. Is this fact evidence against the increase of hurricanes associated with global warming? Write the letters for Yes or No and **one** reasoning statement in the table.

Is this evidence?	Reasoning Statement

Is this evidence?

A. Yes

B. No

Reasoning Statements

C. The data indicates that this particular year is an outlier.

D. The data indicates that the pattern of hurricanes cycles every 40 years.

E. The data indicates that all the data points are within an expected range.

F. The data indicates that the number of hurricanes is random in any given year.

2. Courtney and Michael think that storms lower temperatures and that the average temperature for the area would become cooler if there were more storms. They investigate global warming to clarify their understanding and find that weather is different than climate.

What is the difference between weather and climate? Write your response in the space provided below.

3. Courtney and Michael look at the data for 1990–2006.

Which factor may be a contributing cause for the increasing number of storms between 1990–2006?

- (A) increased salinity of the ocean
- (B) increased length of hurricane seasons
- (C) increased strength of the Coriolis effect
- (D) increased thermal energy in the atmosphere

4. Courtney and Michael understand that a storm's energy originates from the Sun.

Since there are increased number of storms, where does the additional energy come from?

- (A) the increased energy output of the Sun
- (B) the increased kinetic energy of the ocean tides
- (C) thermal energy of Earth's core being released at a faster rate
- (D) more retained energy in Earth's atmosphere due to human activities

5. The table shows data generated from a simulation which models how gases interact with the amount of sunlight, and the sunlight's reflectivity off Earth's surface. The temperatures are that of Earth's atmosphere at the beginning and end of the simulation.

Trials 10 Sec.	Amount of Sunlight	Reflectivity	Carbon Dioxide ppm	Methane ppm	Sulfur Dioxide ppm	Nitrogen Dioxide ppm	Starting Temperature °C	Ending Temperature °C
Starting	Medium	Medium	200	200	200	200	14	13.6
#1	Medium	Medium	300	200	200	200	14	15.7
#2	Medium	Medium	200	300	200	200	14	15.9
#3	Medium	Medium	200	200	300	200	14	12.3
#4	Medium	Medium	200	200	200	300	14	13.6
#5	Medium	Medium	400	200	200	200	14	17.5
#6	Medium	Medium	200	400	200	200	14	16.9

Using the data table, which gas(es) are contributing to the rise in atmospheric temperature? Select **all** that apply.

- (A) Methane
- (B) Sulfur dioxide
- (C) Carbon dioxide
- (D) Nitrogen dioxide