Oklahoma Weather

Brought to you by:

by Allison Cassady, Ph.D.

Adaptable for 4th-5th Grade

4th-5th Grade Weather Unit

Resources

National Oceanic and Atmospheric Administration - http://www.srh.noaa.gov/srh/jetstream/clouds/cloudwise/types.html

American Meteorological Society – www.ametsoc.org

World Meteorological Organization – http://www.wmo.int

Unit Overview and Goal of Unit

To provide students with information about weather, weather safety, weather predicting, and historic weather events.

Thank you so much for downloading News 6's weather unit! In this unit you will find a lesson plan outline as well as worksheets, vocabulary cards, and posters to post in your room. Feel free to use what you want and adapt it for your needs.

4th-5th grade Lesson Outline

I. Introduction
   a) KWL Chart (included in unit)
      i) K – Have students write what they know about weather (see terms listed below in section b)
      ii) W – Have students write what they know about weather
      iii) L – At the end of the unit or lesson have students go back and fill in what they have learned about weather.
   b) Defining Weather Terminology (definitions provided by Merriam-Webster Online Dictionary)
      i) Meteorology – science that deals with atmosphere, weather, and weather forecasting
      ii) Cloud – a visible mass of particles of condensed vapor suspended in the atmosphere
      iii) Precipitation – water that falls to the ground in the form of rain, snow, hail, sleet, etc.
      iv) Lightning – flashes of light produced by a discharge of atmospheric electricity
      v) Thunder – the sound that follows a flash of lightening and is caused by sudden expansion of the air in the path of the electrical discharge
      vi) Anemometer – an instrument for measuring and indicating the force of speed and wind direction
      vii) Barometer – an instrument used to measure air pressure and predict changes in the weather

II. What is a Meteorologist?
   a) Text Resources
      i) The Kids' Book of Weather Forecasting (by Mark Breen & Kathleen Friestad)
      ii) Meteorology (by Pat & Barbara Ward)
   b) Becoming a Meteorologist
      i) Mathematics
      ii) Advanced Physics and Chemistry
      iii) Computer Proficiency
      iv) Bachelor of Science in Meteorology or Atmospheric Sciences
   c) Jobs of a Meteorologist
      i) Weather forecasters
      ii) Climatologists
      iii) Researchers in Atmospheric Sciences
      iv) Consulting Meteorologists
      v) Lecturers
      vi) Weather Broadcasters
   d) If I Were a Meteorologist
      i) Students complete the writing activity and share with the class.

III. Types of Clouds
   a) Text Resources
      i) Cloud Dance (by Thomas Locker)
      ii) The Man Who Named the Clouds (by Julie Hanna & Joan Holub)
      iii) NASA's Wild World of Clouds (http://spaceplace.nasa.gov/posters/en/)
   b) Review with the students the three primary types of clouds
      i) Stratus – generally gray layer of clouds with a uniform base
      ii) Cumulus – detached, often brilliant white, dense clouds that mound and billow vertically
      iii) Cirrus – high, wispy, transparent clouds composed of ice crystals
   c) Low Clouds
      i) Stratus – generally gray layer of clouds with a uniform base
      ii) Stratocumulus – gray or white layered clouds with rounded masses or rolls
      iii) Cumulus – detached, often brilliant white, dense clouds that mound and billow vertically
      iv) Cumulonimbus – heavy, dense, mountain-like thunderstorm cloud
   d) Middle Clouds
      i) Nimbostratus – dark gray layer of clouds that often produce continuous precipitation
      ii) Altostratus – gray or bluish sheet of clouds that can cover the whole sky
      iii) Altocumulus – white or gray patchy sheets of clouds that often appears rippled
   e) High Clouds

i) Cirrostratus – milky, fog-like cloud, that covers the whole sky
ii) Cirrus – high, wispy, transparent clouds composed of ice crystals
iii) Cirrocumulus – thin, white, patchy sheet-like clouds

f) Have students complete Clouds Flip Chart

IV. Precipitation, Lightning and Thunder

a) Text Resources
i) Flash, Crash, Rumble, and Roll (by Franklyn Branley)
ii) Lightning and Thunderstorms (by The Weather Channel & Mike Graf)
iii) Thunder Cake (by Patricia Polacco)

b) Precipitation
i) Water that falls to the ground in the form of rain, snow, hail, sleet, etc.
ii) Rain Experiment (www.laughingkidslearn.com/rain-cloud-science-experiment)
(1) Fill a clear glass jar ¾ full with water
(2) Fill remainder of jar with shaving cream
(3) Have students drop (a few drips at a time) blue food coloring on top of the shaving cream cloud
(4) Discuss observations and results

c) Lightning
i) Flashes of light produced by a discharge of atmospheric electricity
ii) How to Make Lightning Experiment (http://www.learnplayimagine.com/2013/04/how-to-make-lightning.html?m=1)

d) Thunder
i) The sound that follows a flash of lightening and is caused by sudden expansion of the air in the path of the electrical discharge

e) Recipe for a Storm
i) Read Thunder Cake as a class
ii) Have students brainstorm all the "ingredients" necessary for a good thunderstorm
iii) Have students complete the recipe card

V. Measuring Wind

a) Anemometer – an instrument for measuring and indicating the force of speed and wind direction
b) Create an Anemometer (http://unplugyourkids.com/2009/10/04/homemade-anemometer/)

VI. Measuring Air Pressure

a) Barometer – an instrument used to measure air pressure and predict changes in the weather
b) Create a Barometer
i) Materials
(1) Glass Jar
(2) Balloon

(3) Scissors
(4) Thick elastic band
(5) Drinking Straw
(6) Pens
(7) Paper
(8) Tape

ii) Cut neck off of balloon
iii) Stretch balloon over opening of jar as tightly as possible
iv) Secure balloon with elastic band
v) Tape one end of straw directly in the center of the balloon
vi) Set jar near window or source of natural light with Barometer Meter printout so that untapped end of straw sits equal to the middle line between the sun and the rain
vii) Observe and discuss barometer readings in comparison to observed weather throughout the day for several days

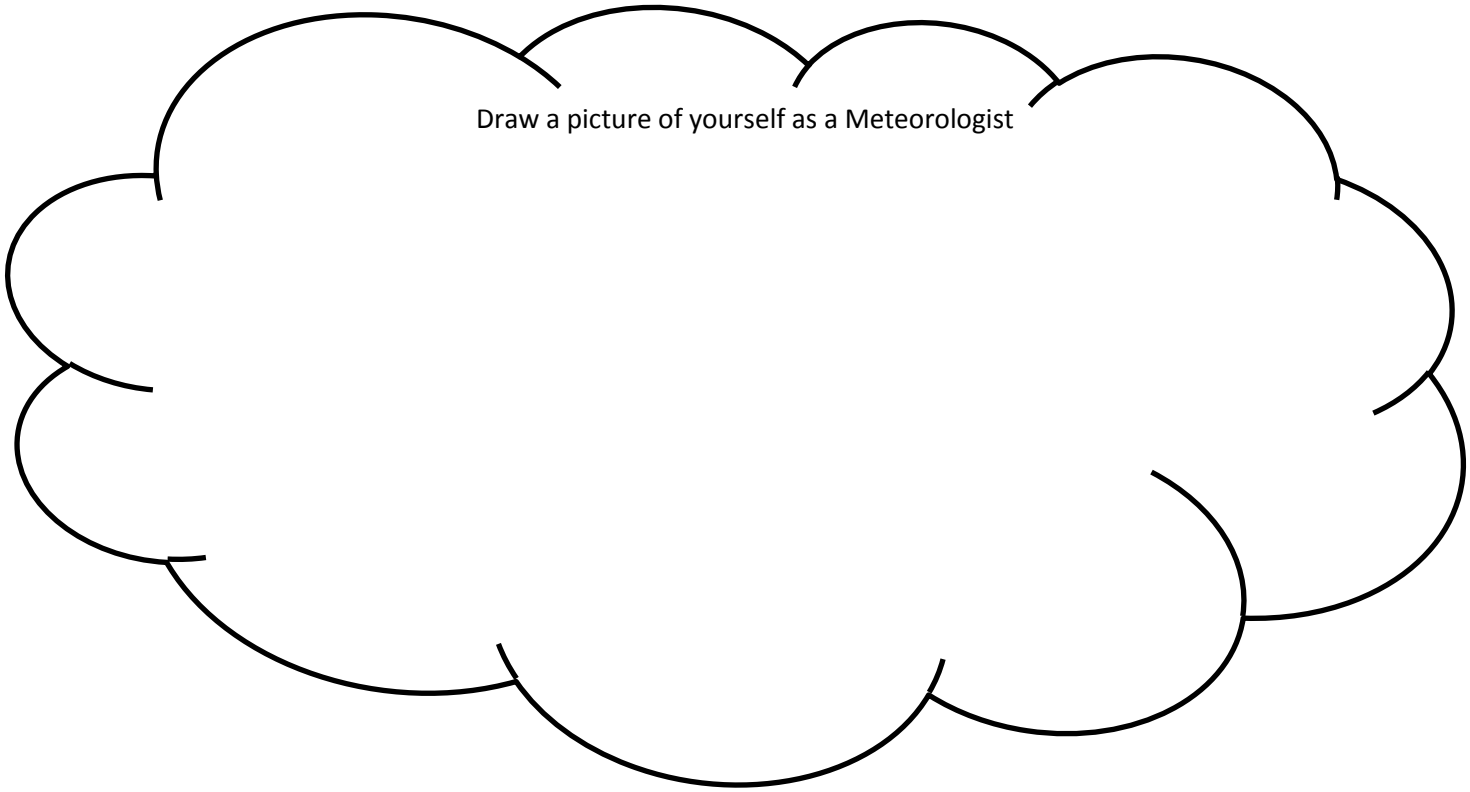
VII. Closing

a) Go back and fill out the "What I Learned" section of the KWL chart
b) Have students complete the Unit Exam

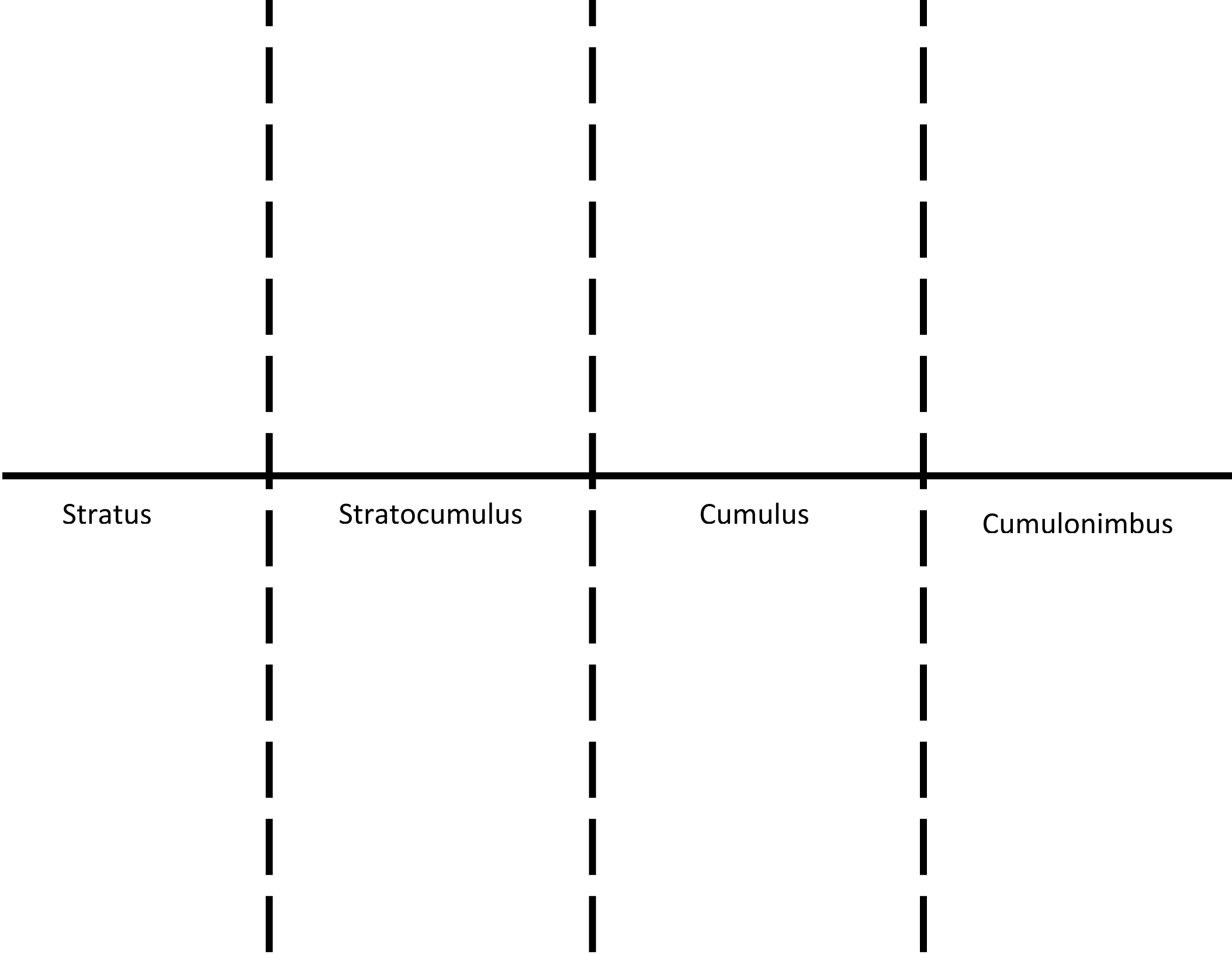
K	W	L
What do you already KNOW about weather?	What do you WANT to know about weather?	What did you LEARN about weather?

IF I WERE A METEOROLOGIST….

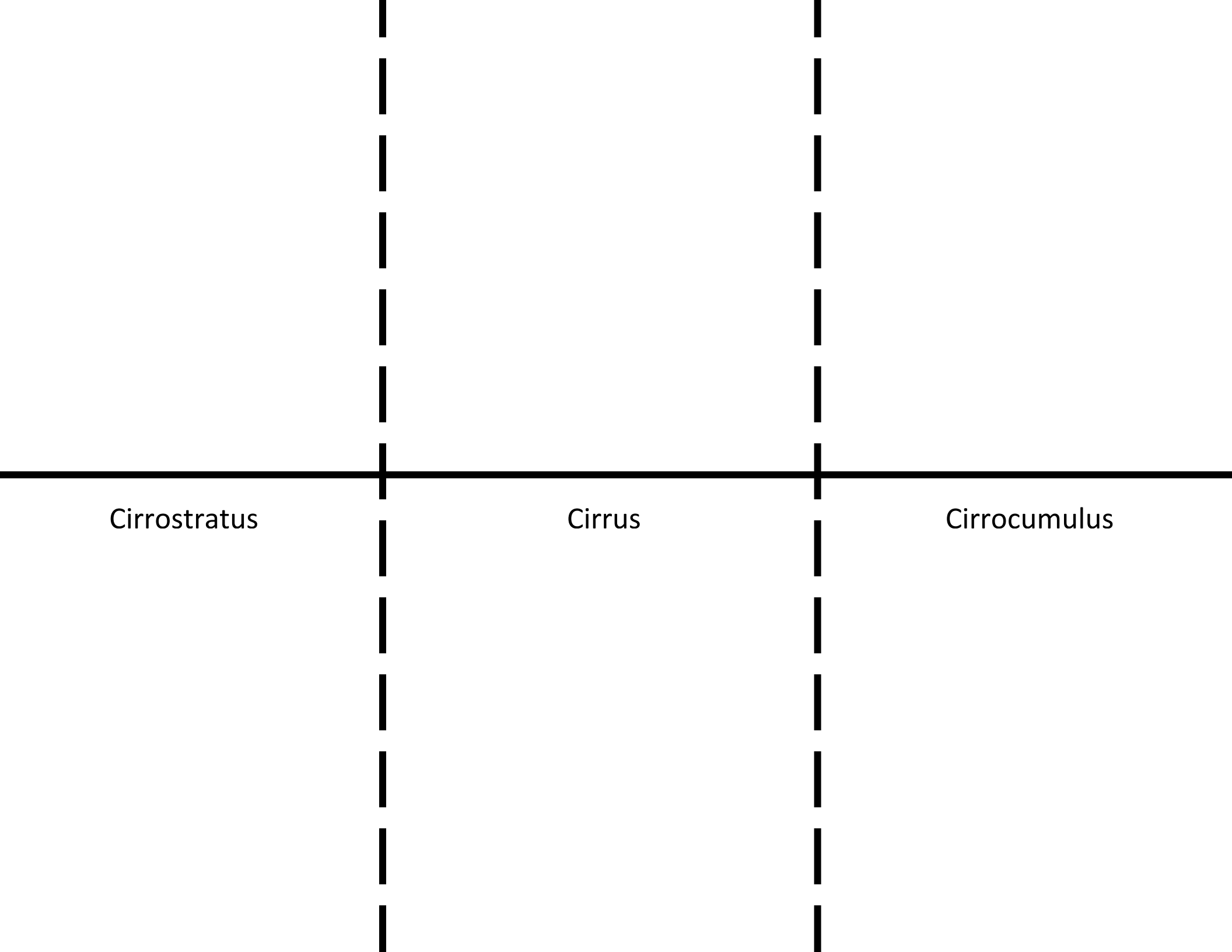
Draw a picture of yourself as a Meteorologist



Share what you would do as a Meteorologist


Stratus
Stratocumulus
Cumulus
Cumulonimbus


Nimbostratus
Altostratus
Altocumulus


Cirrostratus
Cirrus
Cirrocumulus

Recipe for a Thunderstorm

Ingredients:

Steps:

Recipe for a Thunderstorm

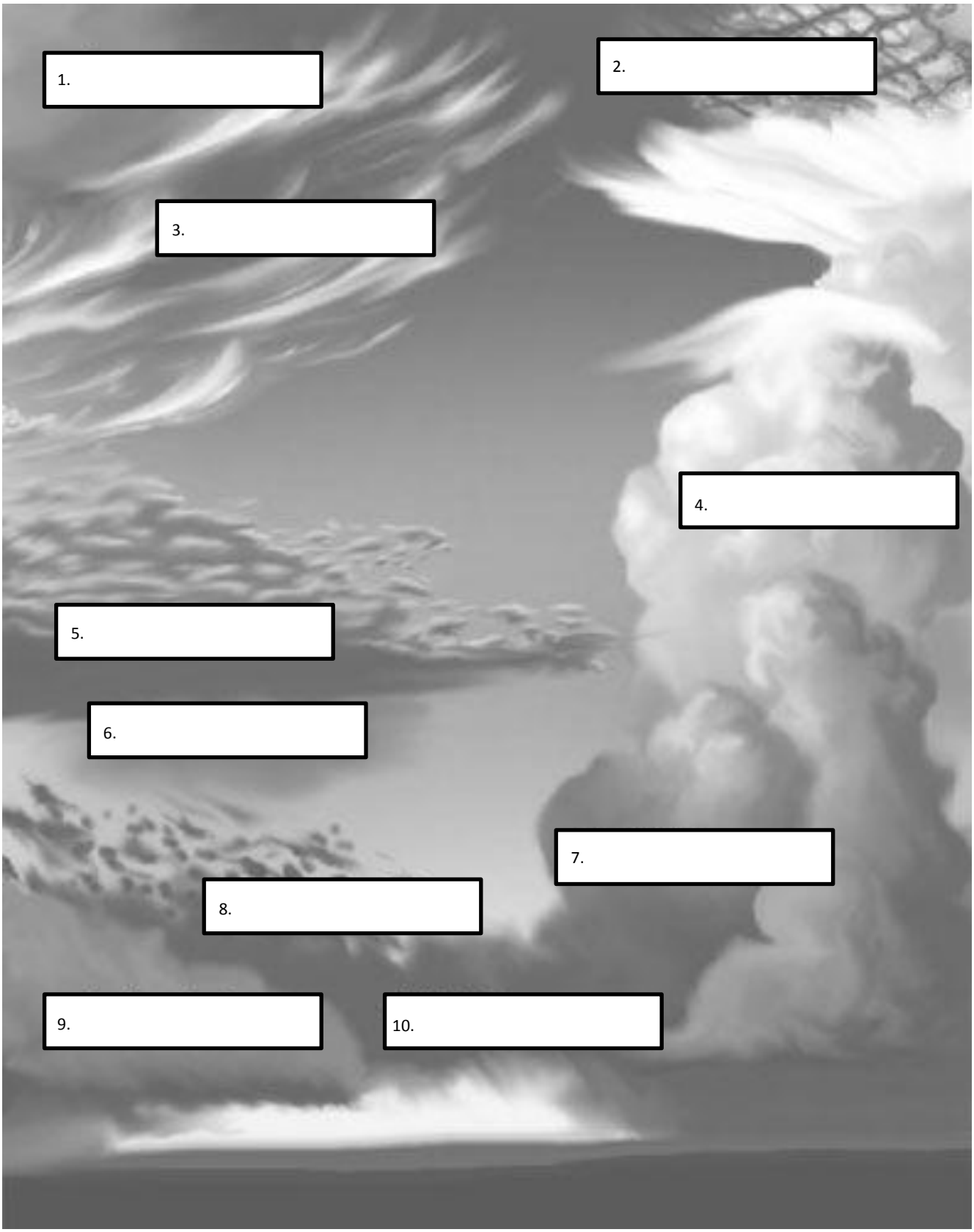
Ingredients:

Steps:

WHAT DOES THE AIR PRESSURE TELL US?

WEATHER QUIZ

Identify the 10 types of clouds on the picture:
Altocumulus, Altostratus, Cirrocumulus, Cirrostratus, Cirrus, Cumulonimbus, Cumulus, Nimbostratus, Stratocumulus, Stratus



Name 3 possible jobs of a Meteorologist:

11. _____

12. _____

13. _____

Match the term to the definition:

a) Thunder
b) Cloud
c) Meteorology
d) Anemometer
e) Lightning
f) Barometer
g) Precipitation

____14. The science that deals with atmosphere, weather, and weather forecasting.

____15. A visible mass of particles of condensed vapor suspended in the atmosphere.

____16. Water that falls to the ground in the form of rain, snow, hail, sleet, etc.

____17. Flashes of light produced by a discharge of atmospheric electricity.

____18. The sound that follows a flash of lightening and is caused by sudden expansion of the air in the path of the electrical discharge.

____19. An instrument for measuring and indicating the force of speed and wind direction.

____20. An instrument used to measure air pressure and predict changes in the weather.