Title: Ben Franklin – Scientist and Inventor

Grade Level: Grades 4 - 8

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Materials Needed: computers with internet access
Handouts for each student (see end of lesson)
Flower in a vase
Variety of leaves for students to observe
Rulers
Hand lenses (magnifying glasses)

Introduction:

When studying colonial America the historical figure Benjamin Franklin always comes up as one of our nation’s Founding Fathers. Students are exposed to him as a printer, publisher and statesman. Excerpts from Poor Richard’s Almanac, his publication, are almost always read and pondered for meaning. Students learn about his part in our nation’s Constitutional Conventions, but little is known about his life as a scientist and inventor, except for his experiments with lightning and electricity. His desire to help the common man, combined with his analytical mind and thirst for knowledge, pushed him to be a lifetime learner always seeking to find real world applications for his discoveries.

Process:

Day 1 - (45 – 60 minutes)

1. Class discussion – What do we know about Ben Franklin?
2. Introduce Ben Franklin as a scientist and inventor. What discoveries / inventions of Franklin do the students know?
3. Web site exploration…..See if students can find a discovery, invention, or scientific exploration of Franklin’s for each letter of the alphabet. Students may work in small groups or as individuals. I prefer to pair students (groups of 2 or 3) for this activity. See list of suggested web sites to use.
Day 2 – (45 – 60 minutes)
1. Share findings, allow students to see the diversity of his explorations.
2. Learn how scientists make observations. It is important they are based on fact, not opinion. There are two types of observations they make. Qualitative observations are based on the five senses. Quantitative observations are based on measurable data and are often made using instruments (such as rulers, balances, thermometers, etc…) Once again, stress the importance of making observations based on fact.
3. Practice making observations as a class by using a flower. Have students specify whether the observation is qualitative or quantitative.
4. Ask students which type of observation they think scientists prefer. (Quantitative observations are desired. They are less subjective.)
5. Give each student a leaf. They need to sketch a detailed picture of it, then make 3 qualitative observations and 3 quantitative observations.

Skills Used:
- Technology – Computer research
- Science Process Skills – observation, measurement, communication

Assessment:
- Evaluate observation handout
- Students will write a short paragraph about Ben Franklin as a scientist / inventor and include information about 6 of his scientific discoveries.

Extensions:
- Research information about the American Philosophical Society.
- Examine primary source documents that highlight some of Franklin’s scientific research. Note his use of sketches, data collection, and observations.
A Rising People: Ben Franklin
and the Americans
June-July 2009
A Landmarks in American History and
Culture Workshop

Suggested Web Sites:

- [http://inventors.about.com/od/fstartinventors/ss/Franklin_invent.htm](http://inventors.about.com/od/fstartinventors/ss/Franklin_invent.htm)
  (great web site for students with information about some of his most well
  known inventions)
- [http://geology.about.com/od/biographies_dh/a/aa_franklin.htm](http://geology.about.com/od/biographies_dh/a/aa_franklin.htm)
- [http://inventors.about.com/od/fstartinventions/a/Franklin.htm](http://inventors.about.com/od/fstartinventions/a/Franklin.htm)
- [http://sln.fi.edu/franklin/scientst/scientst.html](http://sln.fi.edu/franklin/scientst/scientst.html)
- [http://www.energyquest.ca.gov/scientists/franklin.html](http://www.energyquest.ca.gov/scientists/franklin.html)
- [http://bensguide.gpo.gov/benfranklin/inventor.html](http://bensguide.gpo.gov/benfranklin/inventor.html)
Ben Franklin – Scientist and Inventor

Use the internet to research Franklin as a scientist and inventor. See how many letters in the alphabet you can use in highlighting his explorations, discoveries, and inventions.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
Scientific Observations

Closely examine a leaf. Draw sketches to show its two sides. Make them as realistic as possible. Pay careful attention to venation patterns, the leaf’s shape, and its edge pattern. Add notes, measurements, and labels to each sketch as needed. Remember, the purpose of each sketch is to share information with others.

Qualitative Observations
(think – use your senses)

Quantitative Observations
(think – can be measured)

***All observations are based on fact!

1.

2.

3.