Benjamin Banneker:

A Man of Science for the 18th and 21st Centuries

Justine Schaeffer, Director

Benjamin Banneker Historical Park and Museum

Benjamin Banneker
Historical Park and Museum

BALTIMORE COUNTY
MARYLAND

Who are we?

- Baltimore County park

- Located on property Banneker owned in the 1700s
  --In Catonsville/Ellicott City

- Mission
  --Tell the story of Benjamin Banneker, often considered the first African American man of science.

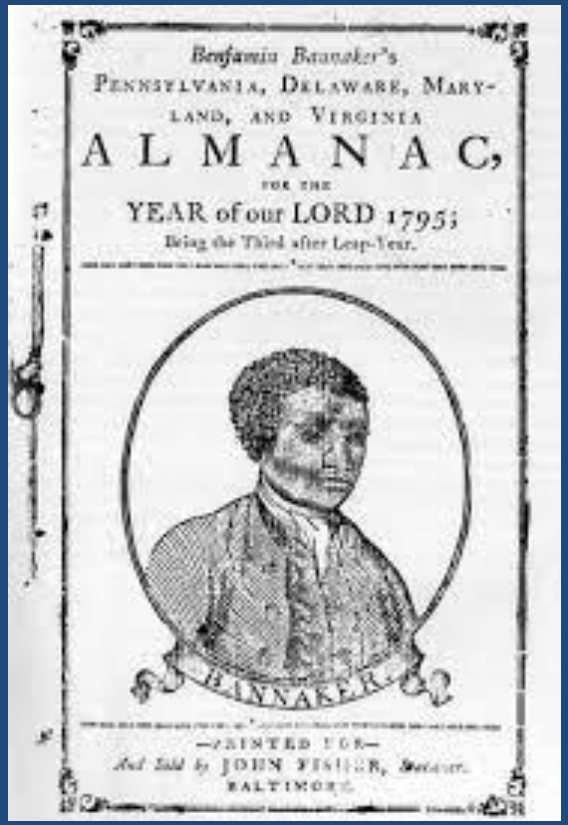
2016 MdSGC Grant to:

- Work with Baltimore County Public Schools to develop new 5th grade astronomy lessons related to Banneker
- Conduct teacher workshop
- Host pilot classes
- Develop almanac and interactive exhibits

Benjamin Banneker, American Scientist

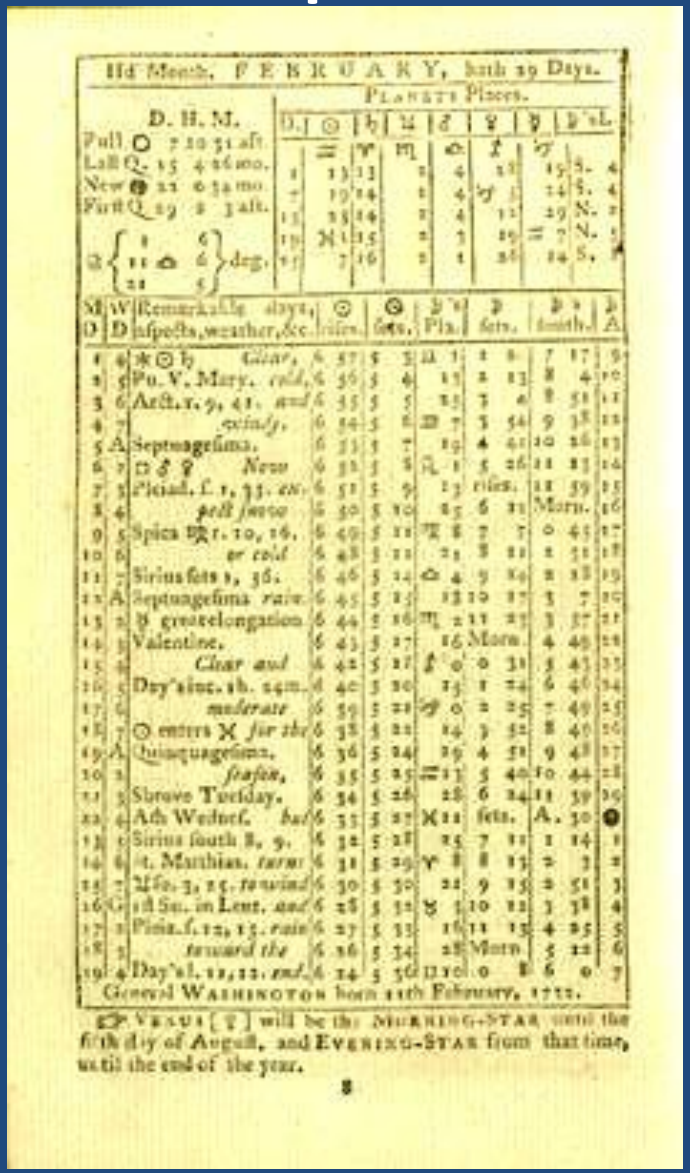
- considered the first African American man of science (1731 – 1806)
- a self-taught mathematician, astronomer, clock maker
- Baltimore County land owner, farmer, naturalist

1792-1797: Almanacs



- Compute predicted eclipses, sun rise/set, moon rise/set and phases, planet places
- Important to farmers and seafearers
- Wildly popular in Md, Pa, Del, Va
- Contained recipes, proverbs, court schedules, ephemerides, weather

Ephemeris, February, 1792



IId Month FEBRUARY, hath 29 Days

Moon Phases		Planets Places	
Full	7 10:31 pm	Day	Sun +5 planets
Last Q.	15 4:26 am	1	
New	22 12:34am	7	
First Q.	29 2:03 pm		

Date	Day of Week	Remarkable Aspect	Sun Rise/set	Moon Rise/set/south
9	5	Spica	6 49	
11	7	Sirius sets	6 46	
14	3	Valentine	6 43	
21	3	Shrove Tuesday	6 34	
22	4	Ash Wednesday	6 33	

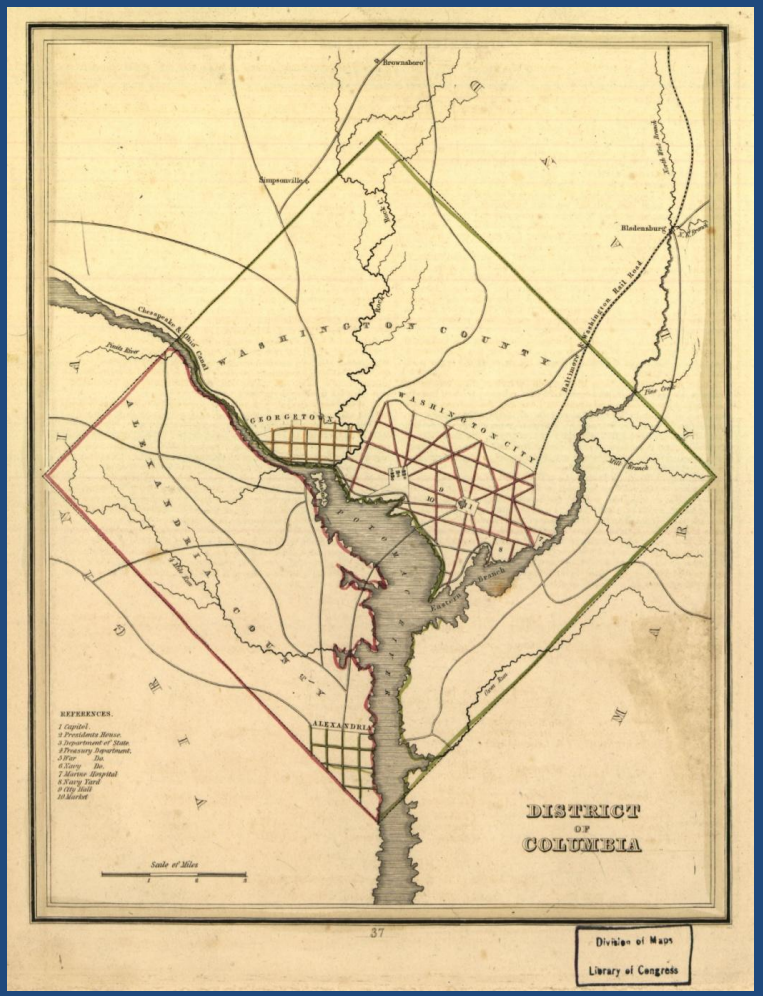
Clear and moderate for the season but turns to wind and rain toward the end.

General Washington born 11th February,1732

Venus will be the Morning Star until the fifth day of August, and the Evening Star from that time until the end of the year.

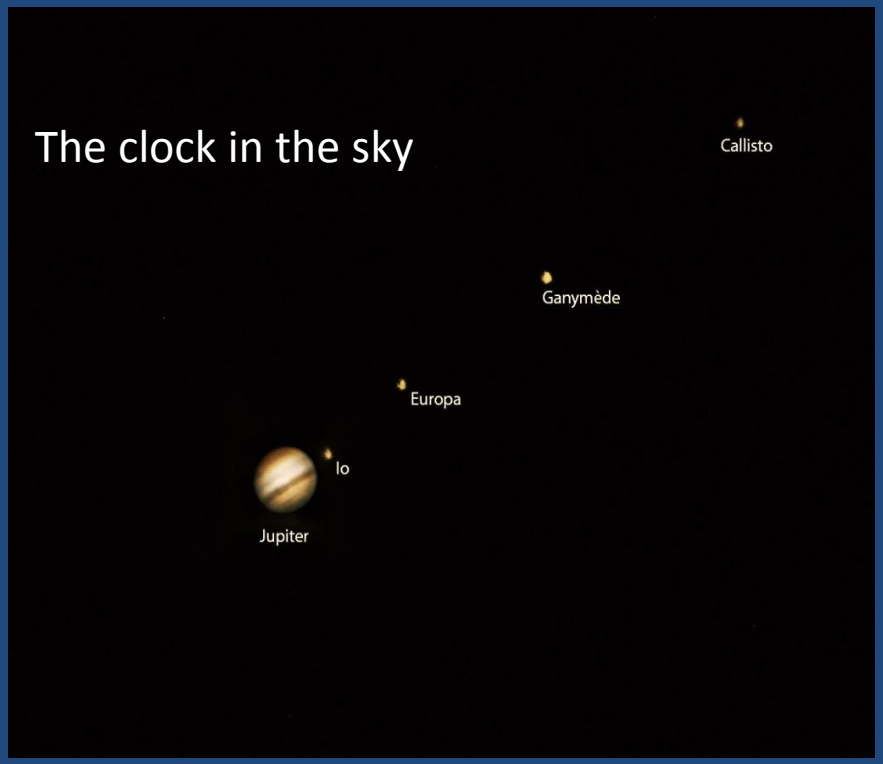
Boundary Survey, 1791

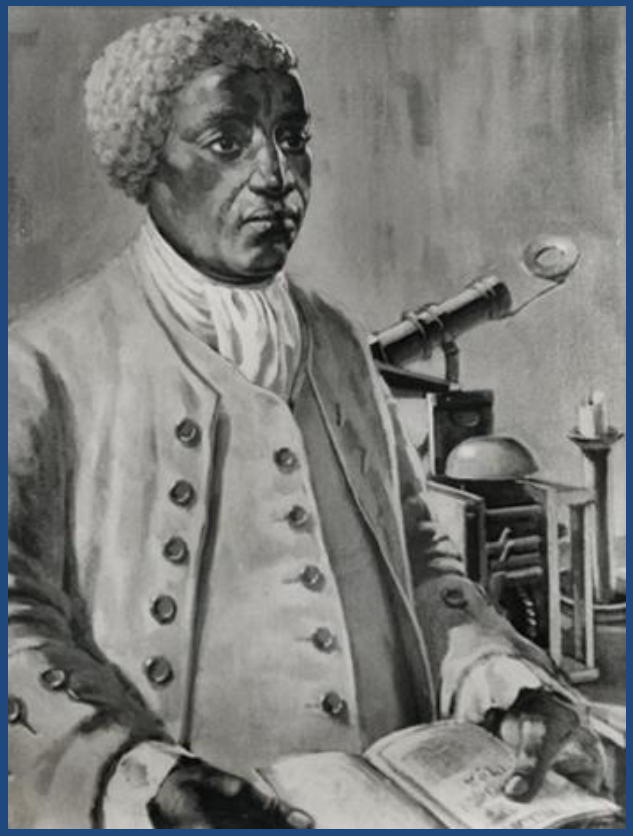
- Worked with Andrew Ellicott
- "Greatest Adventure"



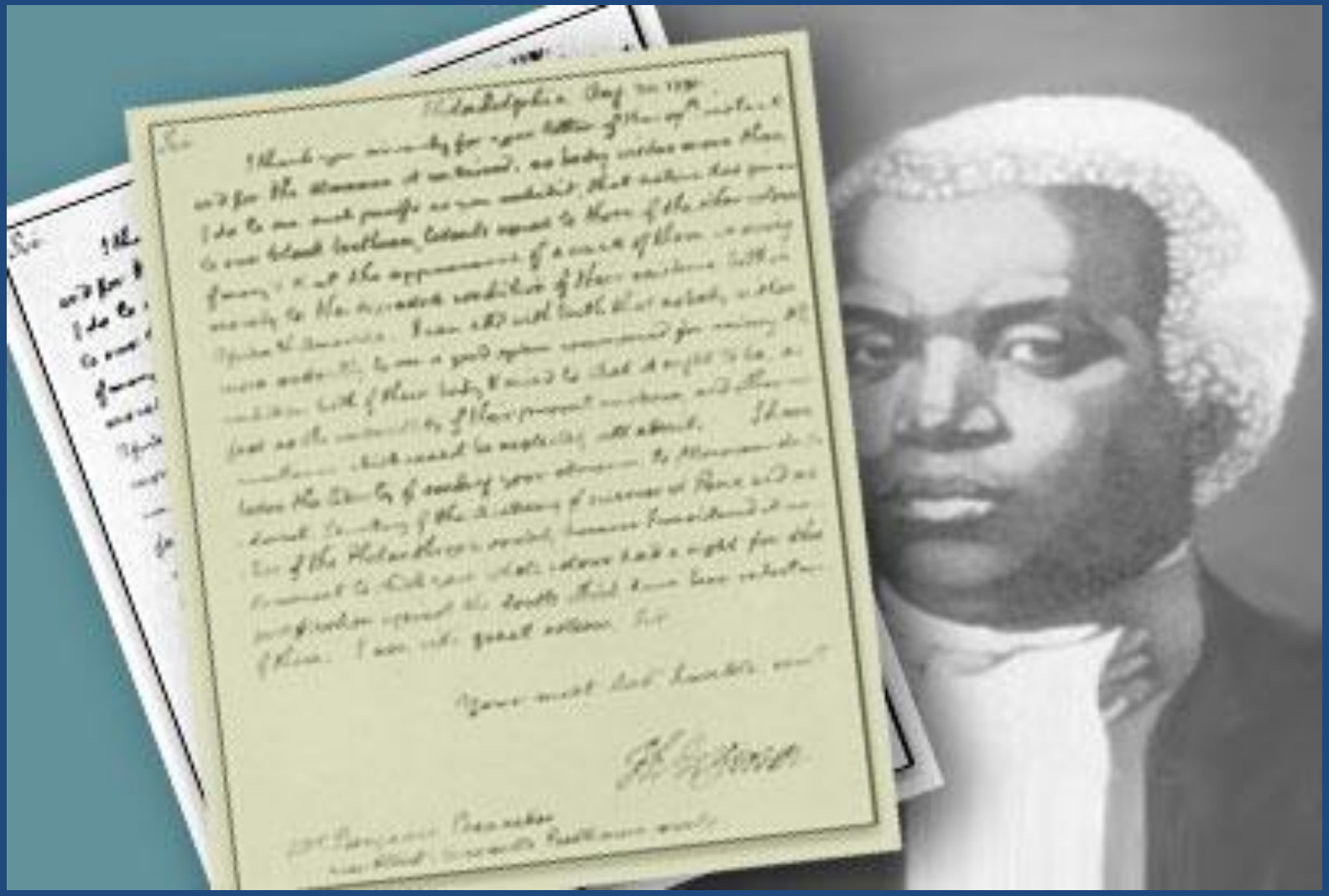
Banneker's Task

- Astronomical clock
- Latitude with a sextant
- Longitude by timing the eclipses of the Galilean Moons of Jupiter





Protest Letter to Thomas Jefferson



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Is he relevant in the 21st century?

Maryland Space Grant Consortium Project

Assist BCPS in development of new lesson: 5th grade space systems unit, incorporating Banneker's work

Teacher training workshop for new lesson

Pilot classes at Banneker Museum

Almanac Display with computer activities

5th Grade Space Systems Unit

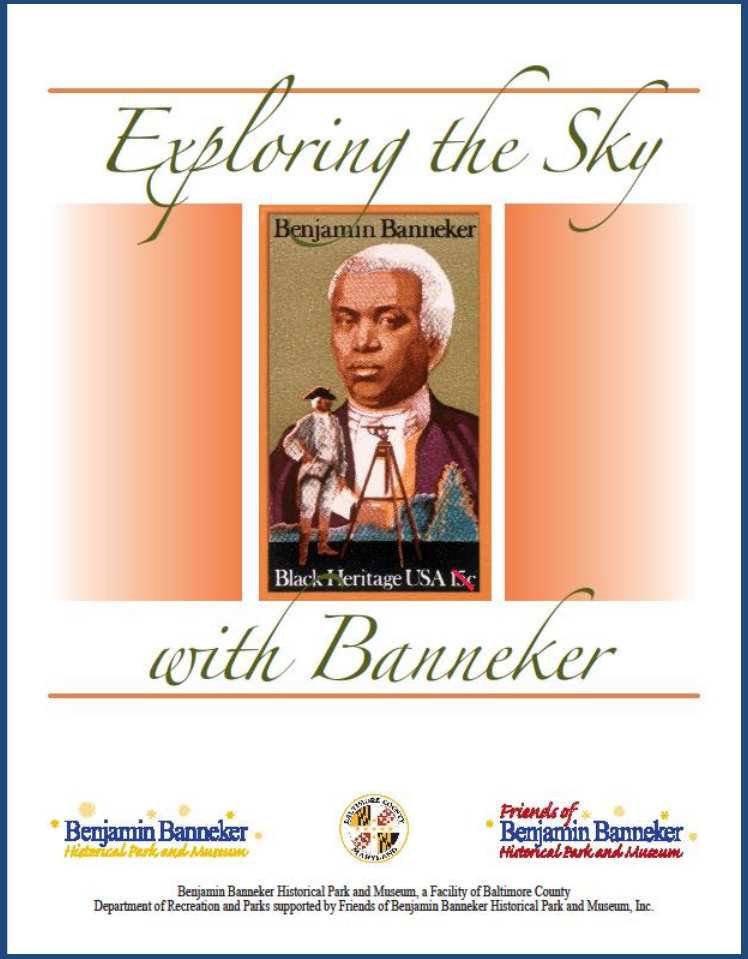
- Undergoing revisions for Next Generation Science Standards

- BCPS Science coordinator already a Banneker fan

- Essential Question for the Students:

  How can the movement of objects in space help me determine my location on Earth?

Teacher Workbook



Finding your way around the sky
- celestial sphere
- coordinate systems

How Banneker surveyed the land
- latitude
- longitude

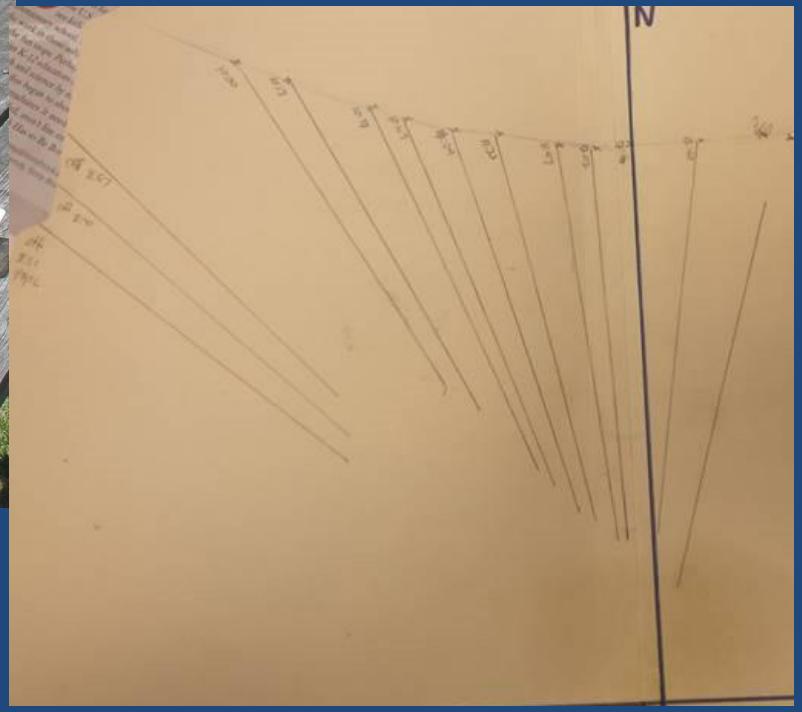
Teacher Workshop

Pilot Classes at Banneker Museum

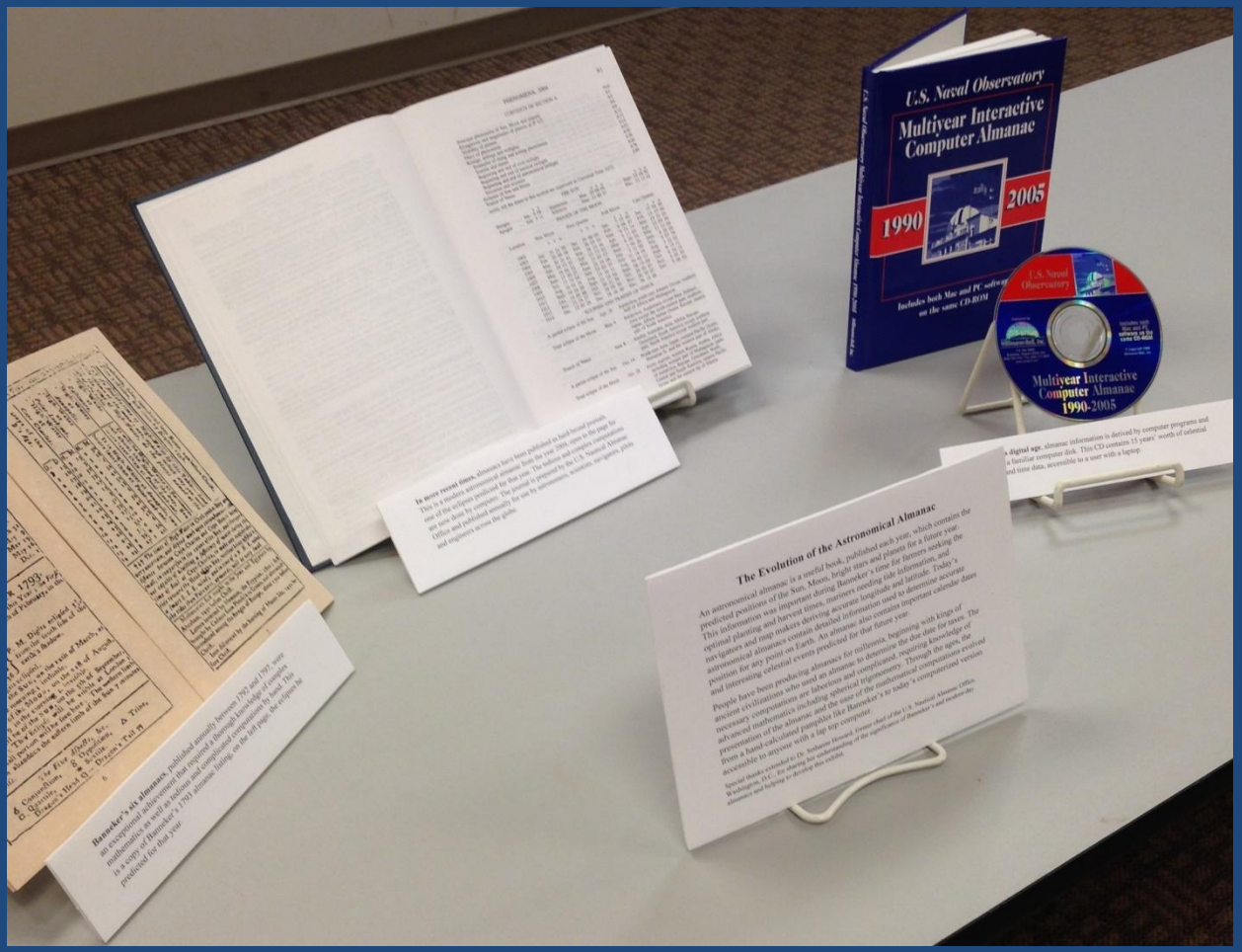
Classroom teachers taught the pilots.

Students determined latitude

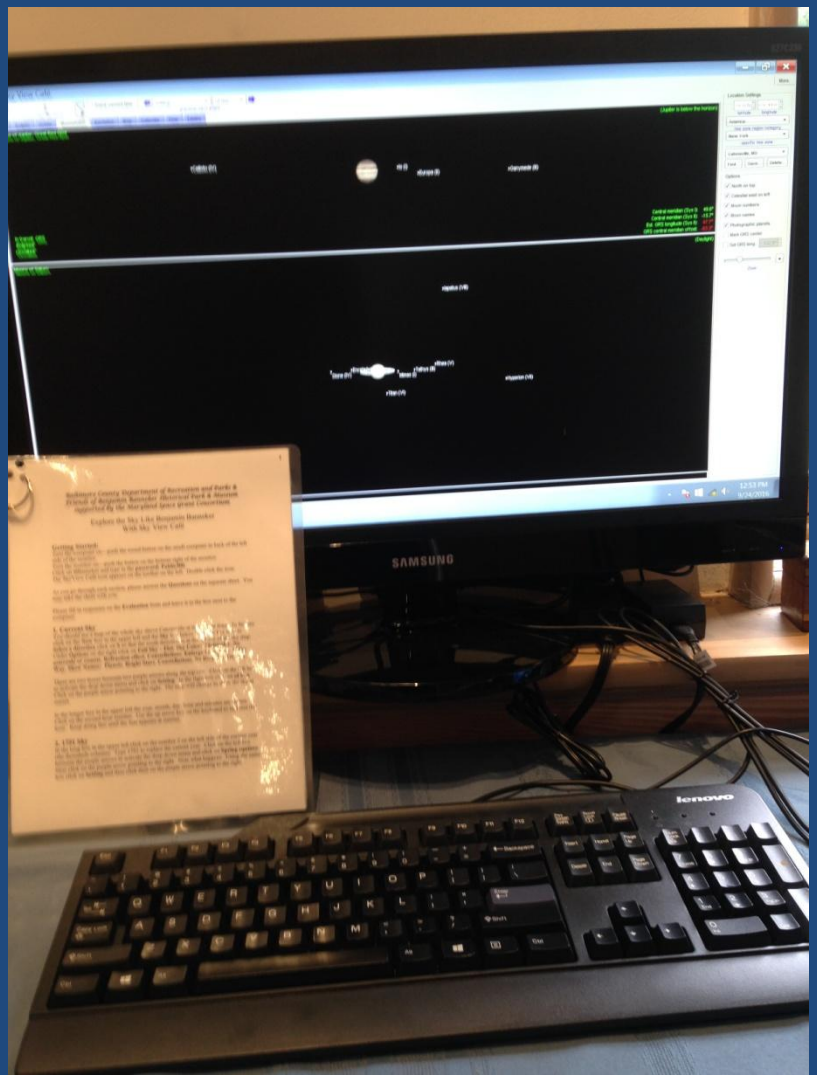
Longitude



Museum Exhibit: Almanacs Through the Ages



Museum Exhibit:
Explore the Sky like Benjamin Banneker using Sky View Café



Accomplishments

- Developed a lesson that will be used by 8,000 5th graders in Baltimore County, each year.

- Taught 23 5th grade teachers

- Piloted the lesson for 4 5th grade classes (114 students)
- Field test the lesson for 5 5th grade classes (Dec. 2016)

- Student pre-test average score—6%

  post-test—54%

Accomplishments

- Connected past and present-day STEM concepts
- Used the Museum's unique position on Banneker's land
- Used Banneker's example as an African American scientist to inspire

A Team Effort

- **Sethanne Howard**, Project Astro Adviser, U.S.Naval Observatory, (retired)

- **Eric Cromwell**, Elementary Science Coordinator, Baltimore County Public Schools

- **Fred Hickok**, Principal Investigator
  Friends of Benjamin Banneker Historical Park and Museum
  Professor Emeritus in Astronomy, CCBC

Thank You!