

C&O Canal Challenge

It is 1872 and you are the owner of a boat called the *Freeman Rawdon*, which travels on the C&O Canal. Your canal boat carries tons of coal back and forth from Cumberland, Maryland to Georgetown, Washington, D.C. This trip takes many days and requires stops at the end of each day to rest the mules. The canal has several unique features that help boats navigate the man-made waterway. There are many locks and aqueducts that you must travel through on your journey. You are on your third day heading from Williamsport, Maryland to Harper's Ferry, West Virginia. You have been asked to create a scaled map of this day's journey and keep track of how long you worked.

About Your Trip:

1. Williamsport, Maryland is located at mile marker 99.
2. Harper's Ferry, West Virginia is located at mile marker 57.
3. Your canal boat travels at a speed of six miles per hour.
4. You take a one hour break to eat lunch, feed and water the mules and check the towline.
5. It takes an extra 10 minutes to navigate each lock.
6. You must navigate locks at the following mile markers 1, mile 5, mile 11, mile 12, mile 22, mile 26, mile 27, mile 34 and mile 40.
7. You must cross the Antietam Creek Aqueduct, which is at mile 32. This will take an addition 15 minutes since you must go slow to avoid hitting the side of the aqueduct and damaging your boat.

Important Information about Designing Your Map:

1. Each mile of the canal is equivalent to $\frac{1}{2}$ inch on you map.
2. The canal must be labeled as two blue lines that are 4cm apart.
3. The towpath must run parallel to the canal. Label the towpath as a purple line.
4. Mark each lock with a red "x" and label its mile marker.
5. Mark the Antietam Creek Aqueduct in its correct location with a green triangle.
6. You must mark Williamsport and Harper's Ferry on your map with a black star.
7. Mark Antietam Battlefield at Mile 31 with a yellow star.
8. You must include a title for you map.
9. You must include a map key in the bottom right hand corner of the paper.

Recording Sheet

How many hours and minutes is your trip from Williamsport, Maryland to Harper's Ferry West Virginia?

Things to Consider:

1. How long is the trip from Williamsport to Harper's Ferry?
2. How fast does your boat travel?
3. How long is your lunch break?
4. How many locks and aqueducts do you need to navigate?
5. How much time does it take to navigate the locks and aqueducts?

Rubric

_____ Map is accurately drawn

_____ Map includes a title

_____ Canal is drawn to the correct scale

_____ Canal and towpath are accurately labeled

_____ All locks and aqueducts are correctly placed and labeled

_____ All cities and landmarks are correctly placed and labeled

_____ Map Key is included and contains all necessary elements

_____ Blue shows canal

_____ Purple shows towpath

_____ Red shows locks

_____ Green shows aqueducts

_____ Black shows cities

_____ Yellow shows Antietam Battlefield

_____ Scale is included in map key

_____ Elapsed Time

_____ Elapsed time has been accurately calculated

_____ All work is shown

_____ Work is neat, organized and labeled

Reflections:

When did I/we take a risk when solving this problem?

How did I make a connection to what I already know?

In what ways did I meet, exceed or fall short of the expectations for this challenge?