Big Boats Up The River

Students will practice addition skills using information about ships visiting the Port of Albany on the Hudson River estuary.

Objectives: Students will solve problems that require them to:
- read and interpret data from a table;
- add strings of single digit numbers to compare use of the Port of Albany by different vessels;
- recognize that ships play a role in transportation and commerce in the Hudson Valley.

Grade level: Elementary (Grades 2-3)

Subject Area: Math, Social Studies (Geography)

New York State Learning Standards:
  Mathematics, Science, & Technology Standards 1, 2, 3
  Social Studies Standard 3

Skills:
- Interpret data from a table.
- Add using single digit whole numbers.
- Apply mathematics in real world settings.
- Reason mathematically.

Duration:
Preparation time: 5 minutes
Activity time: 20 minutes

Materials: Each student should have:
  ☐ Worksheet: Big Boats Up The River
  ☐ Pencil

Background:
The Port of Albany is the destination of many vessels seen on the Hudson. The largest grain export elevator east of the Mississippi loads ships with grain brought to Albany by rail. A few loads of molasses come in each year, to be mixed with grain to produce feed for livestock. Road salt also arrives by ship. Scrap metal is shipped out of Albany, as is wood pulp. Heavy equipment – windmill blades, generators, and turbines – enters and leaves the port on heavy lift vessels. Containers are barged between Albany and New York Harbor.

While oil is not included in data on cargoes handled at the Port of Albany (the tank farms located in the area are privately owned), gasoline, heating oil, jet fuel, and other petroleum products are – by volume and value – the most important cargos on the Hudson River. Tankers and tanker barges bring oil to Albany, and carry ethanol, brought in by rail, to refineries elsewhere in the Northeast, where it is blended into gasoline. Likewise not included in the port data are the frequent shipments of gypsum brought by ship to a wallboard (sheetrock) factory in Rensselaer, across from Albany.

Activity:
1. Discuss the kinds of ships and cargoes seen on the Hudson.
2. Go over the worksheet with the class, or assign as in-class work or homework.

Assessment:
- Have students share answers to questions from worksheet, or collect and grade sheets.
- Use other data from the table to make up similar problems for quiz.

Vocabulary:
cargo: the goods or materials carried on a ship
dock: (verb) to guide a ship onto a pier or wharf; (noun) a platform for unloading ships
estuary: a body of water in which fresh and salt water meet
grain: seeds from grass-like plants such as corn and wheat; used to make flour
grain elevator: buildings used to store grain and transfer it to and from boats, railroad cars, or trucks
machinery: sets of parts connected in ways that transmit force to do work
molasses: a thick, dark syrup made from raw sugar
port: a harbor area where ships load and unload cargo

Resources:
Information about the Port of Albany is available at the Albany Port District Commission's website http://www.portofalbany.com .
Line drawings and descriptions of types of ships seen on the Hudson and New York Harbor can be viewed at http://www.worldtraderef.com/WTR_site/cargo_vessels.asp

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Big Boats Up The River: ANSWER KEY

This table shows the numbers of ships that docked at the Port of Albany from January to June, 2008. It also shows what cargoes they carried, including the grain, scrap iron, and heavy lift cargoes mentioned above. The molasses brought to Albany is mixed with grain to make food for farm animals. The salt is the kind spread on roads during snow and ice storms. Steel and pipe are used in construction projects. Wood pulp is the raw material from which most paper is made. Use the table to answer the questions below.

Ships Docking at the Port of Albany, January to June 2008

		Month					
		January	February	March	April	May	June
Cargo	grain	3		1		1	1
	heavy lift	2		1	7	2	4
	molasses			1			
	salt		1				
	scrap iron	1		1	1	1	1
	steel/pipe			3		2	2
	wood pulp	1	1	1		2	1

1. In what month did the greatest number of heavy lift ships dock at Albany? How many docked at Albany in that month? __*April*__   __*7*__

2. In what month did the greatest number of ships dock at Albany?_*June*_ How many docked in Albany in that month? ___*9*__
   1 + 4 + 1 + 2 + 1 = 9

3. In what month did the smallest number of ships dock at Albany? *February* How many docked in Albany in that month? ___*2*__
   1 + 1 = 2

4. How many times did ships carrying steel or pipe dock at Albany during these six months? ____*7*__
   3 + 2 + 2 = 7

5. Which cargo was carried in and out of the Port of Albany most often?
   __*heavy lift*__ How many times? ____*16*___
   2 + 1 + 7 + 2 + 4 = 16

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