

## A Many-to-One Correspondence

Subject: Mathematics

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Strand: Statistics and Probability

Grade: 4

Content (topic)	
Exploring many-to-one correspondence	
Outcomes	Indicators
<p><b>SP 4.1:</b> Demonstrate an understanding of addition of many-to-one correspondence by</p> <ul style="list-style-type: none"><li>• Comparing correspondences on graphs</li><li>• Justifying the use of many-to-one correspondences</li><li>• Interpreting data shown using many-to-one correspondence</li></ul>	<p><b>SP 4.1b:</b> Compare graphs in which the same data has been displayed using a one-to-one and a many-to-one correspondence, and explain how they are the same and different.</p> <p><b>SP 4.1c:</b> Explain why a many-to-one correspondence is sometimes used rather than a one-to-one correspondence.</p> <p><b>SP 4.1d:</b> Find example of graphs in which a many-to-one correspondence is used in print and electronic media, such as newspapers, magazine, and the Internet, and describe the correspondence used.</p> <p><b>SP 4.1h:</b> Answer a question using a graph in which data is displayed using a many-to-one correspondence.</p>
Mathematical Processes	
<ul style="list-style-type: none"><li>• Reasoning</li><li>• Visualization</li><li>• Communication</li><li>• Logical Thinking</li></ul>	
Lesson Preparation	
Equipment/materials:	
<ul style="list-style-type: none"><li>• A list of Trading Goods at Albany Fort America, 1706. Each item on the list needs to be cut apart and laminated if possible.</li></ul>	
Presentation	
Set	
<ul style="list-style-type: none"><li>• Have the students watch the PowerPoint on the fur trade before explaining that the fur trade was one of the earliest and most important industries in North America and it played a role in developing North America. The fur trade started shortly after contact in 1500 between First Nations people and Europeans. Aboriginal people traded furs for</li></ul>	

implements, cloth, weaponry and other supplies, which aided in the quality of their livelihood.

#### Development

- Let students know that this list (Appendix A) is from Albany, a trading post in the early 1700's. This list is a one-to-one correspondence as there is one entry list for each good.
- Review the list with your class as some of the goods may be unknown to them. Ask the class how the items listed can be categorized (weaponry, clothing, household items, etc.).
- Provide the class with a set of the items cut out and have the class create a many-to-one correspondence chart with the items. Perhaps something like the chart below or perhaps your students can suggest other ways to display the correspondence.

		144 pairs scissors
450 guns	72 pairs shoes	3456 pewter buttons
Weaponry	Clothing	Household Items

- Discuss with your students situations where a many-to-one correspondence would be better used than one-to-one correspondence and situations where one-to-one is better than many-to-one. In this example, the owners of the trading post may want a one-to-one correspondence when the goods are delivered to check off that everything has arrived, but may want a many-to-one correspondence to arrange the goods in the store (a row for clothing, a row for household items, etc.).
- Ask the class if they can think of examples where they would find many-to-one correspondence (e.g., media, newspaper, magazines, websites that chart statistics, etc.)

## Appendix A

*The text below is extracted from the Albany Fort America Journal of 1706. Fort Albany was a fur-trading post in northern Ontario, at the mouth of the Albany River on James Bay. It was founded (before 1682) by the Hudson's Bay Company and is one of its earliest forts.*

A copy of the invoice of trading goods sent over this year from England by Captain Michael Grimington, commander of the Hudson Bay frigate as her follows viz.

5584 lbs powder	72 pairs stockings
20162 lbs shot	72 pairs shoes
350 brass kettles	144 powder horns
60 lbs vermillion	580 hatchets
25 lbs black lead	72 egg boxes
100 lbs thread	160 shirts
450 guns	792 ivory combs
4000 flints	36 horn combs
24 bayonets	3456 pewter buttons
288 fire steels	288 rings
72 files	305 Turkish reds [brilliant red cloth]
500 worms	144 pairs scissors
600 net lines	50 plumes Ostrich feathers
3800 awl blades	3184 yards broadcloth
2052 skeins twine	271 yard baize
2200 needles	320 yards flannel
324 fish-hooks	362 yards duffel
6192 knives	255 blankets
600 hatchets	170 edged men's coats
114 ice chisels	24 plain men's coats
146 arrow heads	66 youth coats
144 pewter spoons	