

Supply and Demand for Copper

Performance Outcome and Indicator

By participating in this activity, you will understand the relationship between supply and demand for natural resources by creating a supply and demand relationship.

Materials Needed

152 pennies for each group of four students

Watch or clock with a second hand

Procedure

1. Read all instructions before beginning the activity.
2. Work in groups of four. Each person should assume one of the following roles: *recorder*, *ore reserves*, the *natural world*, *world demand*.
3. Divide the pennies into two piles:
 - the *ore reserves* (120 pennies) represent the total amount of copper in the earth that is available for mining
 - the *natural world* (32 pennies) represents metal or metal compounds that will become part of the ore reserves as earth processes act upon them to form new bodies of ore.
4. The *world demand* has no pennies at the beginning of the activity but will acquire pennies from the *ore reserves* as the ore is mined.
5. The *recorder* will initiate the activity at the 60-second mark. When 15 seconds have passed, the *natural world* will add one penny to the *ore reserves* pile and will continue to add one penny every 15 seconds throughout the activity. (Ore reserves will therefore increase by 4 pennies every minute.)
6. At the end of one minute and immediately after the *natural world* has added a penny, the *world demand* person removes 1 penny from the *ore reserves* pile. For each subsequent minute of play, the *world demand* will remove twice the number of pennies as were removed the previous minute – i.e., remove 2 pennies at the end of minute two, 4 at the end of minute three, 8 at the end of minute four, etc.
7. The *recorder* should complete the accompanying table as each minute passes.
8. The activity ends when there are insufficient *ore reserves* to meet the needs of world demand.
9. As the activity progresses, note the changes in *ore reserves*, the *natural world*, and *world demand*.

Data Record

Minutes Elapsed	A. Total in Ore Reserves (at start of each minute)	B. Input from Natural World (by minute)	C. Subtotal in Ore Reserves (A + B, at end of each minute)	D. Output to World Demand (by minute)	Total in Ore Reserves (C – D, at end of each minute)
1	120	+ 4	124	- 1	123
2	123	+ 4	127	- 2	125
3	125				
4					
5					
6					
7					
8					
9					
10					

Observations

What happened to...

1. the number of pennies removed by world demand as the minutes passed?
2. the total in ore reserves as the first minutes passed?
3. the total in ore reserves as more and more time passed?

Analysis

1. Explain why the total in ore reserves changed as it did. Relate this to a real-world situation.
2. What would have to happen to world demand to make the total in ore reserves reach a constant level?
3. The supply of pennies from the natural world is constant in this activity, and the real-world demand doubles every minute. How does this correspond to a real-world situation?

Conclusions

1. What does this activity illustrate about supply and demand for copper?
2. Give a real-world example of a problem that might arise as a result of a supply-and-demand situation.
3. Name three things that could be done to lessen supply and demand problems.