

Title: Carl Sagan Cryptograph

Author: Becky Manis

Subject(s): Language Arts, Science

Topic(s): Sagan, Carl, Cryptography, Biography, Space Science

Grade/Level: 5-8

Summary of Activity: Cryptographs are word puzzles. Each letter in the puzzle represents another letter of the alphabet. Once certain letters are determined, then words can be deciphered and finally the entire puzzle.

Objective:

By the end of this activity, students will be able to decipher a cryptograph and design their own cryptograph.

Time Allotment: 30 minutes

Procedures/Instructions:

Have the students work individually or in pairs to decipher the puzzle.

Answer: "Then it seemed absolutely certain to me that if the stars were like the Sun, there must be planets around them. And they must have life on them...I thought of it before I was eight."

Extension: Designing a Cryptograph

Time Allotment: 2-3 hours

Procedures/Instructions:

Have student or student pairs research a famous scientist, astronaut, or someone who has made a significant contribution to the space program. Along with a report, the student or group must turn in a cryptograph of an important quote from their subject.

Instructional Materials:

[Student Worksheet](#)



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Additional Resources (Web Links, File Attachments):

Carl Sagan Biography at the Planetary Society

http://www.planetary.org/about/founders/carl_sagan.html

American Library Association's Great Web Sites for Kids: Biographies

<http://www.ala.org/ala/alsc/greatwebsites/greatwebsitesbiographies.htm>

Cryptograms for Kids

[\[kids.com/sleuth/Fun_and_Games/Puzzles/Cryptograms/index.htm\]\(http://cybersleuth-kids.com/sleuth/Fun_and_Games/Puzzles/Cryptograms/index.htm\)](http://cybersleuth-</p></div><div data-bbox=)

National Science or Mathematics Standards:

Science

History and Nature of Science

CONTENT STANDARD G:

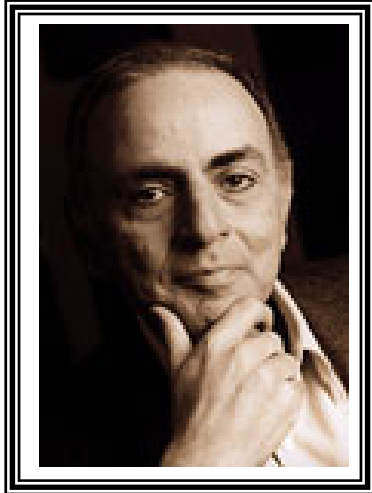
As a result of activities in grades 5-8, all students should develop understanding of

- Science as a human endeavor

Assessment Plan: Students must field test their "crypto" at home or with an assigned partner, and turn the results in to you, along with the code. (This prevents having to decipher all the puzzles in order to grade them.) Students learn the importance of being accurate when assigning letters. Cryptographs can be very frustrating if there is an error in the code.

Name:

A cryptograph is a puzzle made up of letters. Each letter in the puzzle represents another letter of the alphabet. By knowing word patterns and which letters are used more often than others, the puzzle can be solved. See if you can decode the message below...



Even as a young boy, the famous astronomer Carl Sagan had some interesting theories about life in our universe. What were his thoughts after reading his first astronomy book?

“X Q G S C X W G G I G Z
B K W J P V X G P T F G N X B C
S X J I G X Q B X C A
X Q G W X B N W U G N G
P C H G X Q G W V S, X Q G N G I V W X
K G O P B S G X W B N J V S Z X Q G I.
B S Z X Q G T I V W X Q B D G P C A G
J S X Q G I... C X Q J V R Q X J A
C X K G A J N G C U B W G C R Q X.”

Hints:

Each letter of the quote above represents another letter of the alphabet.

Think about the letters that are used most in everyday words.

Look for letters by themselves...what could they stand for?

Use the list of letters below to help you.

Clues: There are NO J's, Q's, X's or Z's in the quote.

P=L
Q=H
W=S

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z