

Activity 11

Analysis of CO₂ Data

Rationale: The amount of CO₂ produced by the worms can be measured directly and then related to other variables. To some extent non-worm decomposition of the garbage is also taking place and producing CO₂. In a later activity, students can pursue this corrective measure to the CO₂ collected during these simpler measurements.

Objectives

- 1) Make decisions about what variables may have a relationship.
- 2) Enter data into a graphing calculator.
- 3) Select the proper regression.

PDE Standards

Science and Technology

- 3.1.7. A,B,C
- 3.2.7. A,B,C,D,E,F
- 3.6.7. A,B
- 3.7.7. A,B,C,D

Environment and Ecology

- 4.1.7. A,B,C
- 4.2.7. A,C
- 4.6.7. A,B,C

Math

- 2.1.8. A,B,D,G
- 2.2.8. A,B,F
- 2.3.8. A,B,D
- 2.4.8. A,B,D,F
- 2.5.8. A,B,C,D
- 2.6.8. A,B,C,E,F
- 2.7.8. B,C,D
- 2.8.8. F,G,H,I,J
- 2.11.8. A,B

Materials

TI 83/84
Graphical Analysis (software)
Computer

Introduction

Cellular respiration is carried on by all living members of the animal Kingdom. *E. fetida* or *E. andrei*, the red worms used in the vermiculture are typical annelids. The worms carry on cellular respiration by absorbing oxygen through the skin and releasing CO₂ by the same process. The previous activities have taken advantage of these traits and the CO₂ measurements will aid in the study of growth and reproduction (fecundity).

