

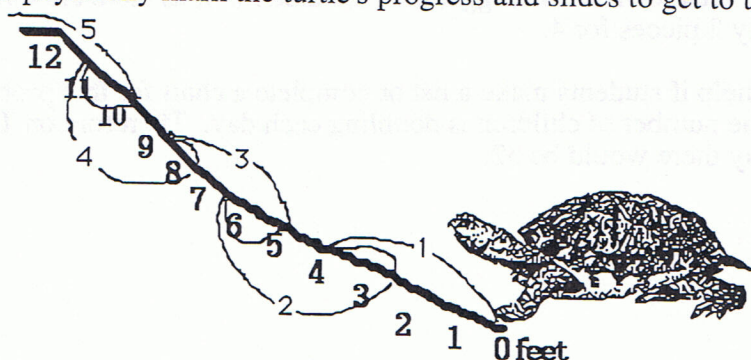
# Commentary

## Mars, I

- (8) Most students will first add the two groups of marbles they have, 3 and 2, to get 5. The students can then subtract  $13 - 5$  to find the missing marbles, or use the *counting up* method from 5 to 13.
- (95) The student can use coins to count out the change: 25, 50, 75, 85, 90, 95. The values of each coin can be added for the total: 3 quarters = 75 cents; 1 dime = 10 cents; and 2 nickels = 10 cents, so  $75 + 10 + 10 = 95$  cents.
- (\$30) The student can add \$7.50 four times or group by two sums of \$15. Counting the money like change could be used: \$7.50, \$15.00, \$22.50, \$30.00. This leads to the concept of multiplication -- some students might even perform  $7.50 \times 4$  on their calculator.
- (12, 9, 14) The repeating pattern is to **add 5**, then **subtract 3**. Once discovered, the student should check to see if the pattern continues on the next few numbers. It does, so they would conjecture that the next three numbers are obtained by:  $7 + 5 = 12$ ;  $12 - 3 = 9$ ;  $9 + 5 = 14$ .

Notice that there is no way for the student to be sure they have discovered a pattern that always holds true; also note that students might discover another pattern that would give the numbers 1, 6, 3, 8, 5, 10, and 7, thus arriving at different numbers than 12, 9, and 14.

- (15) The student can *count up* from 8 to 12, or solve  $12 - 8$  to find that  $*$  = 4. Then the student substitutes 4 for the  $*$  in  $* + 11$ . So,  $4 + 11 = 15$ .
- (13) There are 12 people ( $6 + 6$ ) in the movie ticket line, excluding Sue. When Sue is counted in the line there would  $12 + 1$  or 13 people.
- (5) The student can physically mark the turtle's progress and slides to get to the top.



- (Tom, Sally, Maria, Bob) Drawing a picture as each clue is used is a way for the student to find the students places' from tallest to shortest:

Tom is taller than Sally:

Sally is taller than Bob:

Maria is taller than Bob but shorter than Sue:

Tom Sally

Tom Sally Bob

Tom Sally Maria Bob