Activity 1

The class was shown this code fragment,

```
int pearPrice = 3;
int pearCost = 1;
int pearSales = 17;
int profit = pearSales * (pearPrice - pearCost);
System.out.print("The profit is ");
System.out.println(profit);
```

and was given these questions to discuss:

How many variables are declared?

*There are four variables declared. They are named **pearPrice**, **pearCost**, **pearSales**, and **profit**.*

Are all the variables used?

Yes, the values of all four of these variables are used (read), either in this expression:

```
pearSales * (pearPrice - pearCost)
```

or in the System.out.println statement.

What is printed?

The profit is 34

Describe, in your own words, what the code is computing.

The code is computing the profit from selling 17 pears when each pear costs one dollar to acquire but sells for three dollars.

Assessment 1

The class was shown this code fragment,

```
int a = 3;
int b = 4;
int c = 2 * a - 7;
System.out.print("c has value ");
System.out.println(c);
```

And was given these questions to answer:

> Study the code on the screen. One of the variables is not actually needed in the code shown, as its value is never used. What is its name?
>
> > *The variable b is never used (read) in the code.*
>
> Study the code on the screen. What is printed?
>
> > *Because C has value -1, the following could print:*
> >
> > > *c has value -1*
> >
> > *Because this was not one of the available choices, "None of the above" was the correct answer.*

Activity 2

The class was shown this code fragment,

```
public int mystery(int x, int y) {
     int z = 2 * x;
     int r = y - 1;
     return z * r;
}
```

and was given these questions to discuss:

What does mystery(1,1) return?

If x has value 1 and y has value 1, then z is assigned the value 2, r is assigned the value 0, and the product of z and r is also 0.

What does mystery(3,3) return?

If x has value 3 and y has value 3, then z is assigned the value 6, r is assigned the value 2, and the product of z and r is 12.

For which value of y does mystery(2,y) return 8?

Work backwards:

```
z * r = 8
(2*x) * (y-1) = 8
```

We know x has value 2:

```
(2*2) * (y-1) = 8
y-1 = 2
y = 3
```

For which value of x does mystery(x,2) return 8?

Work backwards, knowing y has value 2:

```
(2*x) * (2-1) = 8
2*x = 8
x = 4
```

Assessment 2

The class was shown this code fragment,

```
public int mystery(int foo) {
     int bar = foo - 3;
     return 2 * bar;
}
```

And was given these questions to answer:

Study the code on the screen. What is the value of mystery(2)?

If foo has value 2, then bar is assigned the value -1, and the value returned is -2.

Study the code on the screen. For which value of x does mystery(x) return 2?

Work backwards:

*2 * bar = 2*

*2 * (foo – 3) = 2*

foo - 3 = 1

foo = 4

Activity 3

The class was shown this code fragment,

```
// void means the method does not return a value
public void niagara (int r, String s) {
     System.out.print("The mighty Niagara");
//   System.out.print("spills ");
     System.out.print(r);
     System.out.print("million cubic feet every ");
     System.out.print(s);
}
```

and was given these questions to discuss:

What does niagara(6,"minute") print to the console?

If r has value 6 and s has value "minute", then the following text is printed to the console:

The mighty Niagara6million cubic feet every minute

Notice that one of the System.out.print statements is commented out, so it won't produce the output "spills ". Also notice that there is not space after "Niagara", and no space before "million".

How can the method be rewritten, using only things we've talked about in class, so that niagara(6,"**minute**") prints:

The mighty Niagara spills 6 million cubic feet every minute, and 360 million cubic feet every 60 minutes.

Here is one of many ways to do this:

```
public void niagara (int r, String s) {
     System.out.print("The mighty Niagara spills ");
     System.out.print(r);
     System.out.print(" million cubic feet every ");
     System.out.print(s);
     System.out.println(", and");
     int factor = 60;
     System.out.print(factor * r);
     System.out.print(" million cubic feet every ");
     System.out.print(factor);
     System.out.print(" ");
     System.out.print(s);
     System.out.println("s.");
}
```

Assessment 3

The class was shown this code fragment,

```
public void medicine(int p, int f, String s){
     System.out.print("Take ");
     System.out.print(f);
     System.out.print(" pills every ");
     System.out.print(f);
     System.out.print(" ");
     System.out.print(s);
     System.out.println(".");
}
```

And was given these questions to answer:

Study the code on the screen. The call medicine(2,3,"hours") should print "Take 2 pills every 3 hours." What does it print?

Take 3 pills every 3 hours.

Study the code on the screen. The call medicine(2,3,"hours") should print "Take 2 pills every 3 hours." Which of the following changes is the best way to correct this problem in the general case?

The best answer was:

Change the second line of method body from "System.out.print(f);" to "System.out.print(p);"