1. The Fibonacci sequence

In the 13th century, the Italian mathematician Leonardo Fibonacci—as a way to explain the geometric growth of a population of rabbits—devised a mathematical sequence that now bears his name. The first two terms in this sequence, \( \text{Fib}(0) \) and \( \text{Fib}(1) \), are 0 and 1, and every subsequent term is the sum of the preceding two. Thus, the first several terms in the Fibonacci sequence look like this:

\[
\begin{align*}
\text{Fib}(0) &= 0 \\
\text{Fib}(1) &= 1 \\
\text{Fib}(2) &= 1 \quad (0 + 1) \\
\text{Fib}(3) &= 2 \quad (1 + 1) \\
\text{Fib}(4) &= 3 \quad (1 + 2) \\
\text{Fib}(5) &= 5 \quad (2 + 3)
\end{align*}
\]

Write a program that displays the terms in the Fibonacci sequence, starting with \( \text{Fib}(0) \) and continuing as long as the terms are less than 10,000. Thus, your program should produce the following sample run:

![Fibonacci sequence](image)

This program continues as long as the value of the term is less than the maximum value, so that the loop construct you need is a `while`, presumably with a header line that looks like this:

```java
while (term < MAX_TERM_VALUE)
```

Note that the maximum term value is specified using a named constant.
2. Drawing a face

Your job is to draw a robot-looking face like the one shown in the following sample run:

![Robot Face](image)

This simple face consists of four parts—a head, two eyes, and a mouth—which are arranged as follows:

- **The head.** The head is a big rectangle whose dimensions are given by the named constants `HEAD_WIDTH` and `HEAD_HEIGHT`. The interior of the head is gray, although it should be framed in black.

- **The eyes.** The eyes should be circles whose radius in pixels is given by the named constant `EYE_RADIUS`. The centers of the eyes should be set horizontally a quarter of the width of the head in from either edge, and one quarter of the distance down from the top of the head. The eyes are yellow.

- **The mouth.** The mouth should be centered with respect to the head in the x-dimension and one quarter of the distance up from the bottom of the head in the y-dimension. The dimensions of the mouth are given by the named constants `MOUTH_WIDTH` and `MOUTH_HEIGHT`. The mouth is white.

Finally, the robot face should be centered in the graphics window.