

Getting Started with Greenfoot



Greenfoot



Materials

- *Java Development Kit (JDK)*
- *Greenfoot*

Install Software

- ~~1. Install Java Development Kit (JDK)~~
 - ~~• use to compile and run Java programs~~
2. Install Greenfoot
 - graphical programming environment

Install Greenfoot

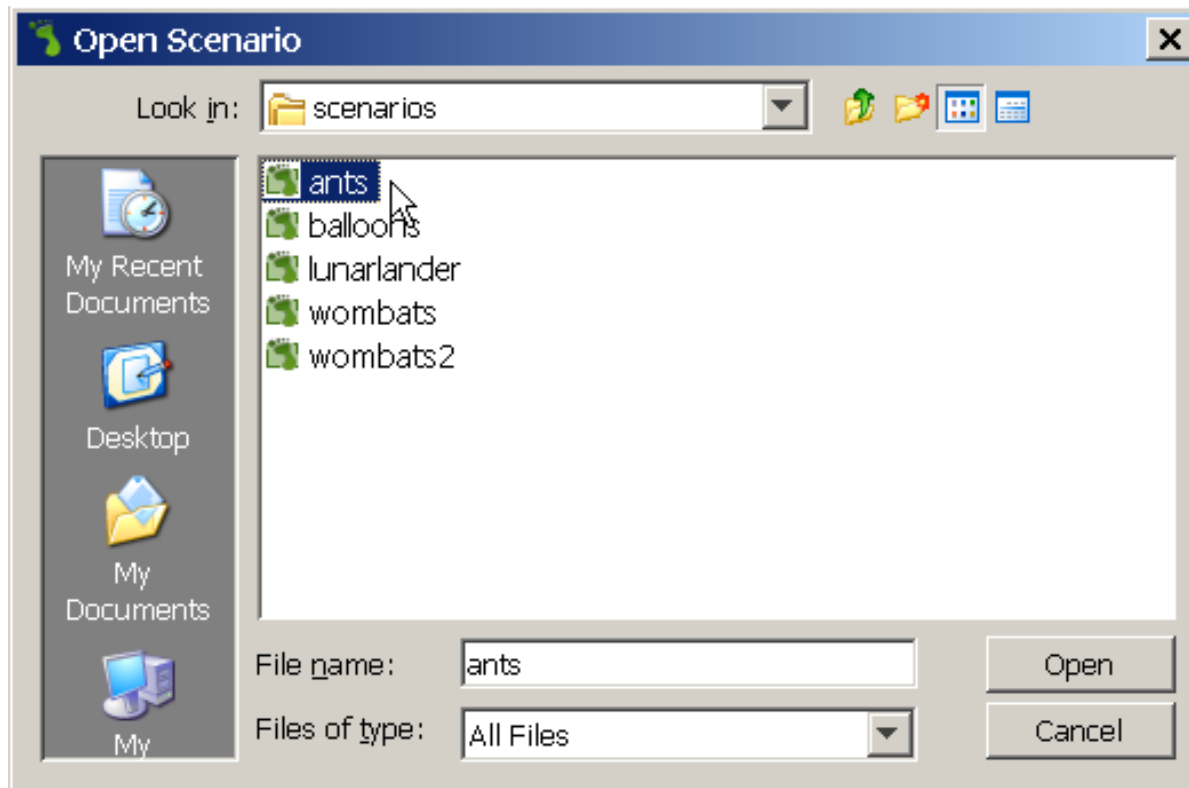
- *Where to get Greenfoot?*
 - <http://www.greenfoot.org>
- *Choose the version for your operating system.*
- *The default version is bundled with the JDK, so no need to install Java separately.*
- *Download and install.*

Install Book Scenarios

- *Visit the Moodle.*
- *You'll find the Book Scenarios under SCO.*
- *Download and unzip to folder of your choice, e.g. SCO\Greenfoot\book-scenarios*

Open the Ants Scenario

- *Go to install directory -> scenarios -> ants*



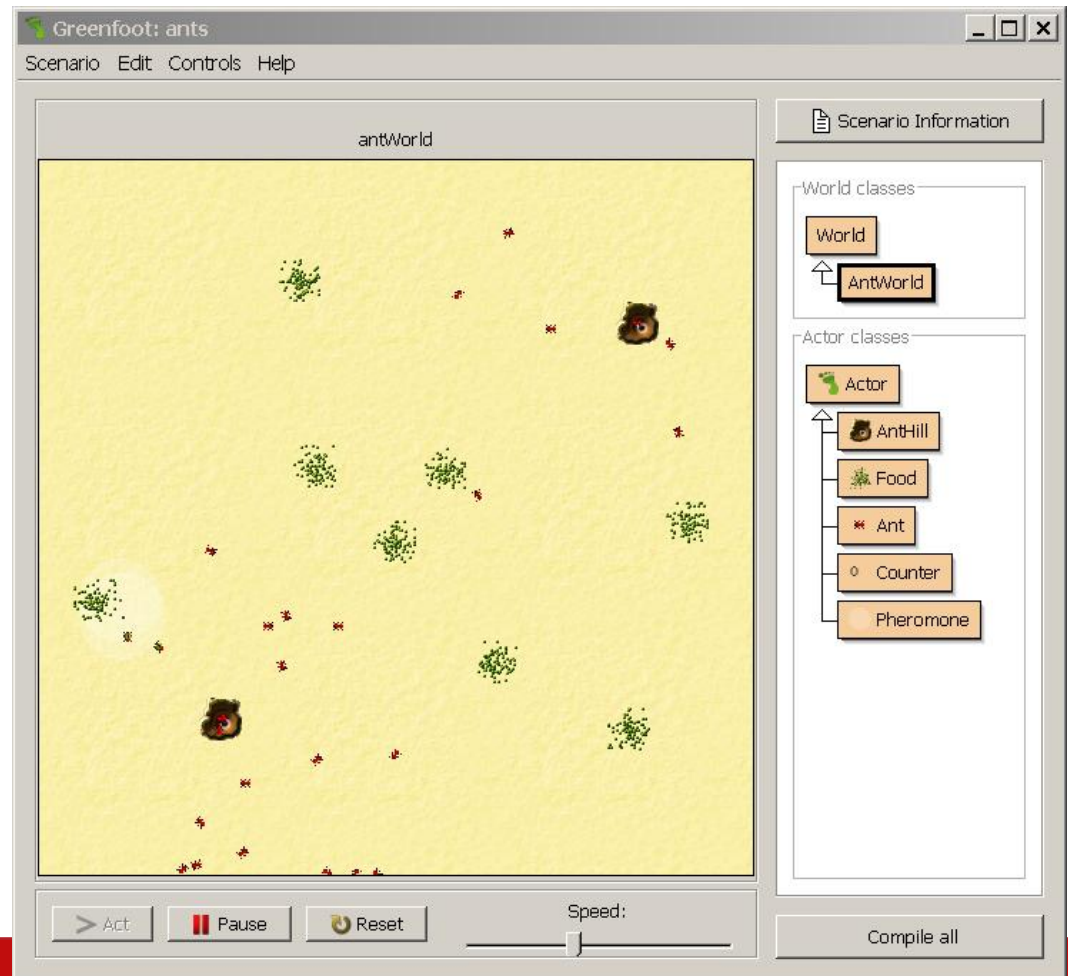
Run Ants

*AntHill is a place
where ants live*

*Ants look for
Food.*

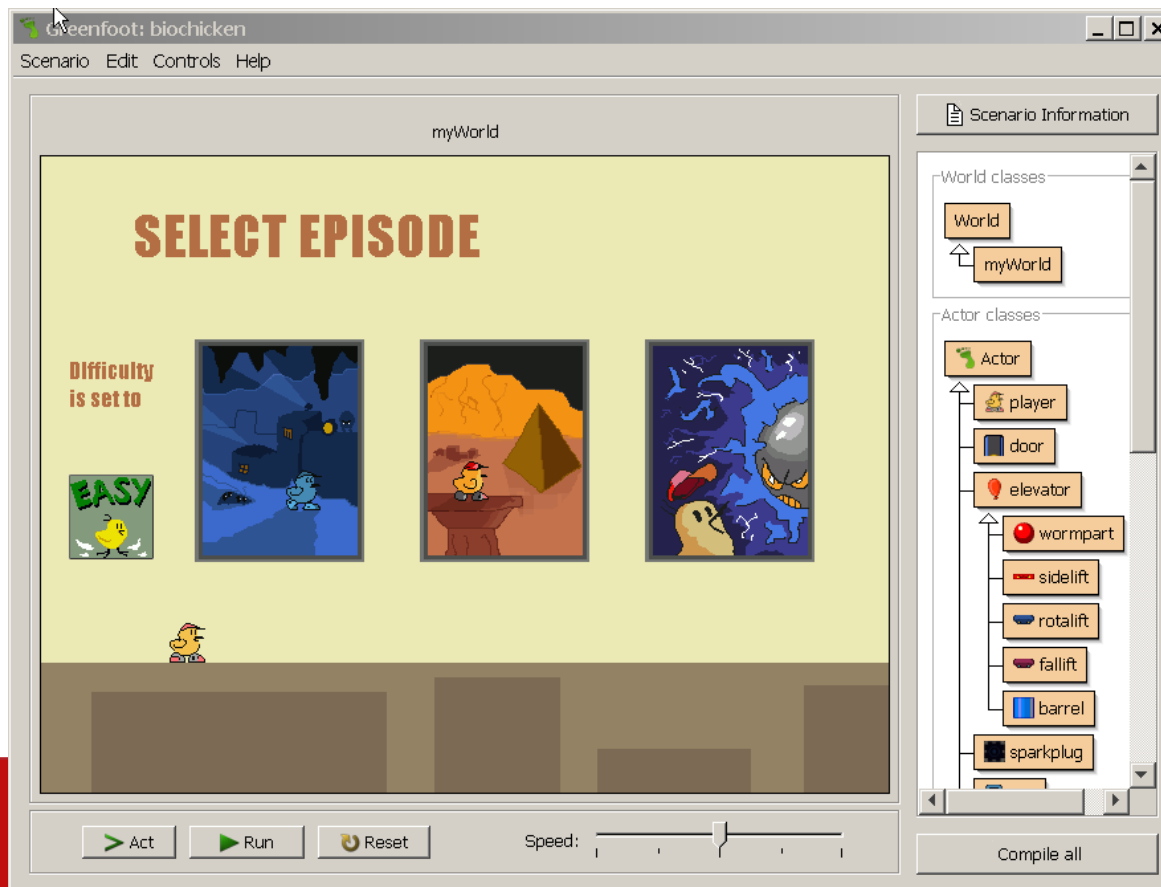
*When an ant
finds food, it
takes it to
anthill.*

*Ant leaves a
trail
(pheromones)
for other ants
to follow.*

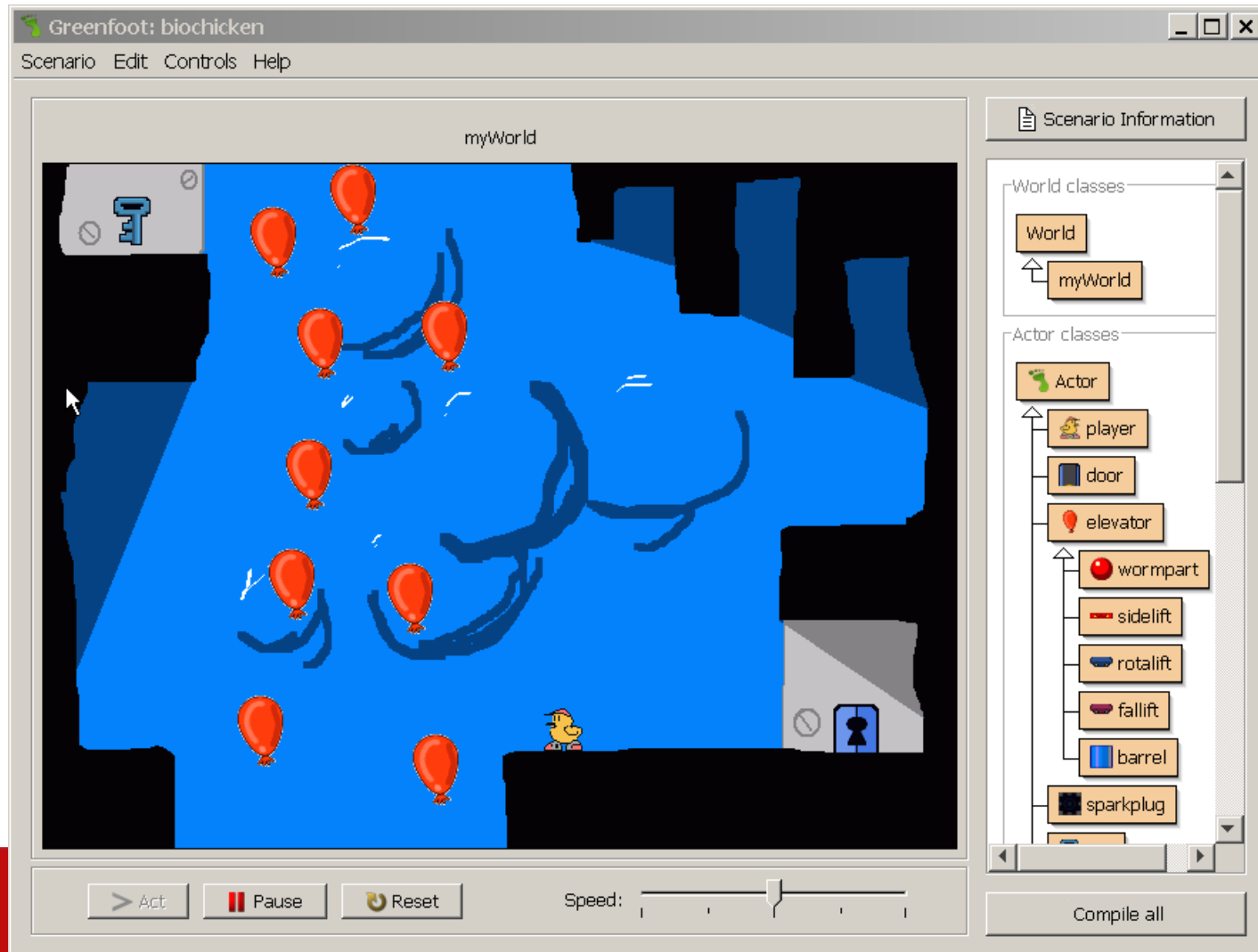


Biomekanoid Chicken game written by a student

Download from
`www.greenfootgallery.org`



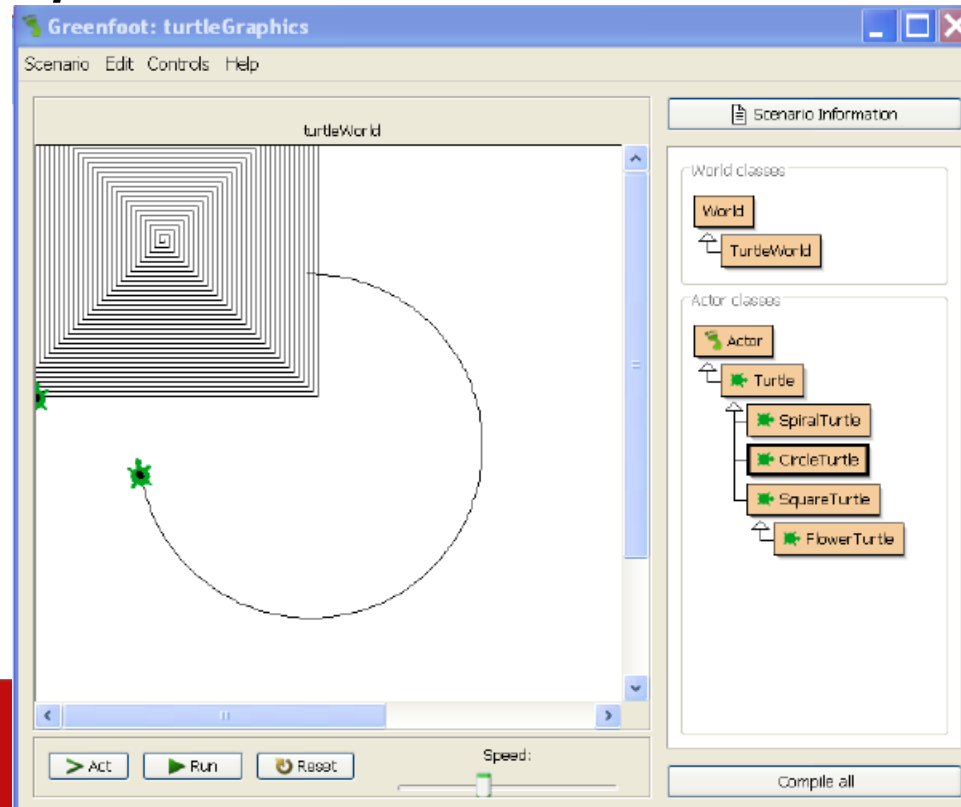
Biochicken scenario



Turtle Graphics

A turtle that moves.

*Turtle has a **pen**. If the pen is down, it draws a path.*



What is a Program?

A Program is a set of instructions for the computer.

Program in English

```
move.  
  
if you find food, then...  
    take some food  
    take food to ant hill
```

Program in Java

```
move();  
  
if ( findFood() ) {  
    takeFood();  
    headHome();  
}
```

Program is a Collection of Behavior

Behavior means the things you can do.

People have behavior, Turtles have behavior.

Computer programs have behavior, too.

Person

```
wakeUp  
eat( food )  
walk  
study  
play  
sleep( )
```

Turtle in Greenfoot

```
act( )  
move( 5 )  
penUp( )  
penDown( )  
setColor( "red" )  
turn( degrees )
```

Program is a Collection of Behavior

*A **program** defines **behavior** to perform the job we want the program to do.*

Actor

Program for an Actor in
Greenfoot:

```
act ( )  
  
setLocation ( x, y )  
  
setRotation ( angle )  
  
getNeighbors ( )
```

A Program defines *behavior*

The parts of a program define the **behavior** of objects.

Behavior - what an object can *do*, what he can tell you.

Program in English

```
move
if you find food, then...
    take food
    carry food to anthill
```

"find food" behavior

"take food" behavior

Program in Java

```
act() {
    move();
    if (findFood()) {
        takeFood();
        headHome();
    }
}
```

Complex behavior → Simple behavior

- *We want programs that are **simple**.*
- *To make a program simple, we divide complicated behavior into many simpler behaviors*

```
brushTeeth( ) {  
    pick up tooth brush  
    put toothpaste on tooth brush  
    open mouth  
    move toothbrush over teeth  
    ...  
}
```

What is Java?



*Java is a **language** for writing **computer programs**.*

Java is very popular because:

- *it runs on almost any computer*
- *create many kinds of applications:*
 - *games*
 - *world wide web*
 - *mobile phone, PDA, small device*
- *it is free*