| | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-all.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/SimpleSound.html)   [**NEXT CLASS**](http://docs.google.com/Sound.html) | [**FRAMES**](http://docs.google.com/index.html?SimpleTurtle.html)    [**NO FRAMES**](http://docs.google.com/SimpleTurtle.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | [CONSTR](#3znysh7) | [METHOD](#2et92p0) | DETAIL: FIELD | [CONSTR](#3dy6vkm) | [METHOD](#26in1rg) |

## Class SimpleTurtle

[java.lang.Object](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true)  
 **SimpleTurtle**

**Direct Known Subclasses:** [Turtle](http://docs.google.com/Turtle.html)

public class **SimpleTurtle**extends [Object](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true)

Class that represents a Logo-style turtle. The turtle starts off facing north. A turtle can have a name, has a starting x and y position, has a heading, has a width, has a height, has a visible flag, has a body color, can have a shell color, and has a pen. The turtle will not go beyond the model display or picture boundaries. You can display this turtle in either a picture or in a class that implements ModelDisplay. Copyright Georgia Institute of Technology 2004

**Author:** Barb Ericson ericson@cc.gatech.edu

| **Constructor Summary** | |
| --- | --- |
| [**SimpleTurtle**](http://docs.google.com/SimpleTurtle.html#SimpleTurtle(int,%20int))(int x, int y)            Constructor that takes the x and y position for the turtle |
| [**SimpleTurtle**](http://docs.google.com/SimpleTurtle.html#SimpleTurtle(int,%20int,%20ModelDisplay))(int x, int y, [ModelDisplay](http://docs.google.com/ModelDisplay.html) display)            Constructor that takes the x and y position and the model displayer |
| [**SimpleTurtle**](http://docs.google.com/SimpleTurtle.html#SimpleTurtle(int,%20int,%20Picture))(int x, int y, [Picture](http://docs.google.com/Picture.html) picture)            Constructor that takes the x and y position and the picture to draw on |
| [**SimpleTurtle**](http://docs.google.com/SimpleTurtle.html#SimpleTurtle(ModelDisplay))([ModelDisplay](http://docs.google.com/ModelDisplay.html) display)            Constructor that takes a model display and adds a turtle in the middle of it |
| [**SimpleTurtle**](http://docs.google.com/SimpleTurtle.html#SimpleTurtle(Picture))([Picture](http://docs.google.com/Picture.html) picture)            Constructor that takes the picture to draw on and will appear in the middle |

| **Method Summary** | |
| --- | --- |
| void | [**backward**](http://docs.google.com/SimpleTurtle.html#backward())()            Method to go backward by 100 pixels |
| void | [**backward**](http://docs.google.com/SimpleTurtle.html#backward(int))(int pixels)            Method to go backward a given number of pixels |
| void | [**clearPath**](http://docs.google.com/SimpleTurtle.html#clearPath())()            Method to clear the path (history of where the turtle has been) |
| void | [**drawInfoString**](http://docs.google.com/SimpleTurtle.html#drawInfoString(java.awt.Graphics))([Graphics](http://java.sun.com/javase/6/docs/api/java/awt/Graphics.html?is-external=true) g)            Method to draw the information string |
| void | [**drop**](http://docs.google.com/SimpleTurtle.html#drop(Picture))([Picture](http://docs.google.com/Picture.html) dropPicture)            Method to draw a passed picture at the current turtle location and rotation in a picture or model display |
| void | [**forward**](http://docs.google.com/SimpleTurtle.html#forward())()            Method to move the turtle foward 100 pixels |
| void | [**forward**](http://docs.google.com/SimpleTurtle.html#forward(int))(int pixels)            Method to move the turtle forward the given number of pixels |
| [Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) | [**getBodyColor**](http://docs.google.com/SimpleTurtle.html#getBodyColor())()            Method to get the body color |
| double | [**getDistance**](http://docs.google.com/SimpleTurtle.html#getDistance(int,%20int))(int x, int y)            Get the distance from the passed x and y location |
| double | [**getHeading**](http://docs.google.com/SimpleTurtle.html#getHeading())()            Method to get the current heading |
| int | [**getHeight**](http://docs.google.com/SimpleTurtle.html#getHeight())()            Method to return the height of this object |
| [Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) | [**getInfoColor**](http://docs.google.com/SimpleTurtle.html#getInfoColor())()            Method to get the information color |
| [ModelDisplay](http://docs.google.com/ModelDisplay.html) | [**getModelDisplay**](http://docs.google.com/SimpleTurtle.html#getModelDisplay())()            Method to get the model display for this simple turtle |
| [String](http://java.sun.com/javase/6/docs/api/java/lang/String.html?is-external=true) | [**getName**](http://docs.google.com/SimpleTurtle.html#getName())()            Method to get the name of the turtle |
| [Pen](http://docs.google.com/Pen.html) | [**getPen**](http://docs.google.com/SimpleTurtle.html#getPen())()            Method to get the pen |
| [Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) | [**getPenColor**](http://docs.google.com/SimpleTurtle.html#getPenColor())()            Method to get the pen color |
| int | [**getPenWidth**](http://docs.google.com/SimpleTurtle.html#getPenWidth())()            Method to get the pen width |
| [Picture](http://docs.google.com/Picture.html) | [**getPicture**](http://docs.google.com/SimpleTurtle.html#getPicture())()            Method to get the picture for this simple turtle |
| [Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) | [**getShellColor**](http://docs.google.com/SimpleTurtle.html#getShellColor())()            Method to get the shell color |
| boolean | [**getShowInfo**](http://docs.google.com/SimpleTurtle.html#getShowInfo())()            Method to get value of show info |
| int | [**getWidth**](http://docs.google.com/SimpleTurtle.html#getWidth())()            Method to return the width of this object |
| int | [**getXPos**](http://docs.google.com/SimpleTurtle.html#getXPos())()            Method to get the current x position |
| int | [**getYPos**](http://docs.google.com/SimpleTurtle.html#getYPos())()            Method to get the current y position |
| void | [**hide**](http://docs.google.com/SimpleTurtle.html#hide())()            Method to hide the turtle (stop showing it) This doesn't affect the pen status |
| boolean | [**isPenDown**](http://docs.google.com/SimpleTurtle.html#isPenDown())()            Method to check if the pen is down |
| boolean | [**isVisible**](http://docs.google.com/SimpleTurtle.html#isVisible())()            Method to get the value of the visible flag |
| void | [**moveTo**](http://docs.google.com/SimpleTurtle.html#moveTo(int,%20int))(int x, int y)            Method to move to turtle to the given x and y location |
| void | [**paintComponent**](http://docs.google.com/SimpleTurtle.html#paintComponent(java.awt.Graphics))([Graphics](http://java.sun.com/javase/6/docs/api/java/awt/Graphics.html?is-external=true) g)            Method to paint the turtle |
| void | [**penDown**](http://docs.google.com/SimpleTurtle.html#penDown())()            Method to set the pen down |
| void | [**penUp**](http://docs.google.com/SimpleTurtle.html#penUp())()            Method to lift the pen up |
| void | [**setBodyColor**](http://docs.google.com/SimpleTurtle.html#setBodyColor(java.awt.Color))([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)            Method to set the body color which will also set the pen color |
| void | [**setColor**](http://docs.google.com/SimpleTurtle.html#setColor(java.awt.Color))([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)            Method to set the color of the turtle. |
| void | [**setHeading**](http://docs.google.com/SimpleTurtle.html#setHeading(double))(double heading)            Method to set the heading |
| void | [**setHeight**](http://docs.google.com/SimpleTurtle.html#setHeight(int))(int theHeight)            Method to set the height of this object |
| void | [**setInfoColor**](http://docs.google.com/SimpleTurtle.html#setInfoColor(java.awt.Color))([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)            Method to set the information color |
| void | [**setModelDisplay**](http://docs.google.com/SimpleTurtle.html#setModelDisplay(ModelDisplay))([ModelDisplay](http://docs.google.com/ModelDisplay.html) theModelDisplay)            Method to set the model display for this simple turtle |
| void | [**setName**](http://docs.google.com/SimpleTurtle.html#setName(java.lang.String))([String](http://java.sun.com/javase/6/docs/api/java/lang/String.html?is-external=true) theName)            Method to set the name of the turtle |
| void | [**setPen**](http://docs.google.com/SimpleTurtle.html#setPen(Pen))([Pen](http://docs.google.com/Pen.html) thePen)            Method to set the pen |
| void | [**setPenColor**](http://docs.google.com/SimpleTurtle.html#setPenColor(java.awt.Color))([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)            Method to set the pen color |
| void | [**setPenDown**](http://docs.google.com/SimpleTurtle.html#setPenDown(boolean))(boolean value)            Method to set the pen down boolean variable |
| void | [**setPenWidth**](http://docs.google.com/SimpleTurtle.html#setPenWidth(int))(int width)            Method to set the pen width |
| void | [**setPicture**](http://docs.google.com/SimpleTurtle.html#setPicture(Picture))([Picture](http://docs.google.com/Picture.html) pict)            Method to set the picture for this simple turtle |
| void | [**setShellColor**](http://docs.google.com/SimpleTurtle.html#setShellColor(java.awt.Color))([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)            Method to set the shell color |
| void | [**setShowInfo**](http://docs.google.com/SimpleTurtle.html#setShowInfo(boolean))(boolean value)            Method to show the turtle information string |
| void | [**setVisible**](http://docs.google.com/SimpleTurtle.html#setVisible(boolean))(boolean value)            Method to set the visible flag |
| void | [**setWidth**](http://docs.google.com/SimpleTurtle.html#setWidth(int))(int theWidth)            Method to set the width of this object |
| void | [**show**](http://docs.google.com/SimpleTurtle.html#show())()            Method to show the turtle (doesn't affect the pen status |
| [String](http://java.sun.com/javase/6/docs/api/java/lang/String.html?is-external=true) | [**toString**](http://docs.google.com/SimpleTurtle.html#toString())()            Method to return a string with informaiton about this turtle |
| void | [**turn**](http://docs.google.com/SimpleTurtle.html#turn(double))(double degrees)            Method to turn the turtle the passed degrees use negative to turn left and pos to turn right |
| void | [**turnLeft**](http://docs.google.com/SimpleTurtle.html#turnLeft())()            Method to turn left |
| void | [**turnRight**](http://docs.google.com/SimpleTurtle.html#turnRight())()            Method to turn right |
| void | [**turnToFace**](http://docs.google.com/SimpleTurtle.html#turnToFace(int,%20int))(int x, int y)            Method to turn towards the given x and y |
| void | [**turnToFace**](http://docs.google.com/SimpleTurtle.html#turnToFace(SimpleTurtle))([SimpleTurtle](http://docs.google.com/SimpleTurtle.html) turtle)            Method to turn to face another simple turtle |
| void | [**updateDisplay**](http://docs.google.com/SimpleTurtle.html#updateDisplay())()            Method to update the display of this turtle and also check that the turtle is in the bounds |

| **Methods inherited from class java.lang.**[**Object**](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true) |
| --- |
| [clone](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#clone()), [equals](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#equals(java.lang.Object)), [finalize](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#finalize()), [getClass](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#getClass()), [hashCode](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#hashCode()), [notify](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#notify()), [notifyAll](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#notifyAll()), [wait](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#wait()), [wait](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#wait(long)), [wait](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#wait(long,%20int)) |

| **Constructor Detail** |
| --- |

### SimpleTurtle

public **SimpleTurtle**(int x,  
 int y)

Constructor that takes the x and y position for the turtle

**Parameters:**x - the x posy - the y pos

### SimpleTurtle

public **SimpleTurtle**(int x,  
 int y,  
 [ModelDisplay](http://docs.google.com/ModelDisplay.html) display)

Constructor that takes the x and y position and the model displayer

**Parameters:**x - the x posy - the y posdisplay - the model display

### SimpleTurtle

public **SimpleTurtle**([ModelDisplay](http://docs.google.com/ModelDisplay.html) display)

Constructor that takes a model display and adds a turtle in the middle of it

**Parameters:**display - the model display

### SimpleTurtle

public **SimpleTurtle**(int x,  
 int y,  
 [Picture](http://docs.google.com/Picture.html) picture)

Constructor that takes the x and y position and the picture to draw on

**Parameters:**x - the x posy - the y pospicture - the picture to draw on

### SimpleTurtle

public **SimpleTurtle**([Picture](http://docs.google.com/Picture.html) picture)

Constructor that takes the picture to draw on and will appear in the middle

**Parameters:**picture - the picture to draw on

| **Method Detail** |
| --- |

### getDistance

public double **getDistance**(int x,  
 int y)

Get the distance from the passed x and y location

**Parameters:**x - the x locationy - the y location

### turnToFace

public void **turnToFace**([SimpleTurtle](http://docs.google.com/SimpleTurtle.html) turtle)

Method to turn to face another simple turtle

### turnToFace

public void **turnToFace**(int x,  
 int y)

Method to turn towards the given x and y

**Parameters:**x - the x to turn towardsy - the y to turn towards

### getPicture

public [Picture](http://docs.google.com/Picture.html) **getPicture**()

Method to get the picture for this simple turtle

**Returns:**the picture for this turtle (may be null)

### setPicture

public void **setPicture**([Picture](http://docs.google.com/Picture.html) pict)

Method to set the picture for this simple turtle

**Parameters:**pict - the picture to use

### getModelDisplay

public [ModelDisplay](http://docs.google.com/ModelDisplay.html) **getModelDisplay**()

Method to get the model display for this simple turtle

**Returns:**the model display if there is one else null

### setModelDisplay

public void **setModelDisplay**([ModelDisplay](http://docs.google.com/ModelDisplay.html) theModelDisplay)

Method to set the model display for this simple turtle

**Parameters:**theModelDisplay - the model display to use

### getShowInfo

public boolean **getShowInfo**()

Method to get value of show info

**Returns:**true if should show info, else false

### setShowInfo

public void **setShowInfo**(boolean value)

Method to show the turtle information string

**Parameters:**value - the value to set showInfo to

### getShellColor

public [Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) **getShellColor**()

Method to get the shell color

**Returns:**the shell color

### setShellColor

public void **setShellColor**([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)

Method to set the shell color

**Parameters:**color - the color to use

### getBodyColor

public [Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) **getBodyColor**()

Method to get the body color

**Returns:**the body color

### setBodyColor

public void **setBodyColor**([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)

Method to set the body color which will also set the pen color

**Parameters:**color - the color to use

### setColor

public void **setColor**([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)

Method to set the color of the turtle. This will set the body color

**Parameters:**color - the color to use

### getInfoColor

public [Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) **getInfoColor**()

Method to get the information color

**Returns:**the color of the information string

### setInfoColor

public void **setInfoColor**([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)

Method to set the information color

**Parameters:**color - the new color to use

### getWidth

public int **getWidth**()

Method to return the width of this object

**Returns:**the width in pixels

### getHeight

public int **getHeight**()

Method to return the height of this object

**Returns:**the height in pixels

### setWidth

public void **setWidth**(int theWidth)

Method to set the width of this object

**Parameters:**theWidth - in width in pixels

### setHeight

public void **setHeight**(int theHeight)

Method to set the height of this object

**Parameters:**theHeight - the height in pixels

### getXPos

public int **getXPos**()

Method to get the current x position

**Returns:**the x position (in pixels)

### getYPos

public int **getYPos**()

Method to get the current y position

**Returns:**the y position (in pixels)

### getPen

public [Pen](http://docs.google.com/Pen.html) **getPen**()

Method to get the pen

**Returns:**the pen

### setPen

public void **setPen**([Pen](http://docs.google.com/Pen.html) thePen)

Method to set the pen

**Parameters:**thePen - the new pen to use

### isPenDown

public boolean **isPenDown**()

Method to check if the pen is down

**Returns:**true if down else false

### setPenDown

public void **setPenDown**(boolean value)

Method to set the pen down boolean variable

**Parameters:**value - the value to set it to

### penUp

public void **penUp**()

Method to lift the pen up

### penDown

public void **penDown**()

Method to set the pen down

### getPenColor

public [Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) **getPenColor**()

Method to get the pen color

**Returns:**the pen color

### setPenColor

public void **setPenColor**([Color](http://java.sun.com/javase/6/docs/api/java/awt/Color.html?is-external=true) color)

Method to set the pen color

**Parameters:**color - the color for the pen ink

### setPenWidth

public void **setPenWidth**(int width)

Method to set the pen width

**Parameters:**width - the width to use in pixels

### getPenWidth

public int **getPenWidth**()

Method to get the pen width

**Returns:**the width of the pen in pixels

### clearPath

public void **clearPath**()

Method to clear the path (history of where the turtle has been)

### getHeading

public double **getHeading**()

Method to get the current heading

**Returns:**the heading in degrees

### setHeading

public void **setHeading**(double heading)

Method to set the heading

**Parameters:**heading - the new heading to use

### getName

public [String](http://java.sun.com/javase/6/docs/api/java/lang/String.html?is-external=true) **getName**()

Method to get the name of the turtle

**Returns:**the name of this turtle

### setName

public void **setName**([String](http://java.sun.com/javase/6/docs/api/java/lang/String.html?is-external=true) theName)

Method to set the name of the turtle

**Parameters:**theName - the new name to use

### isVisible

public boolean **isVisible**()

Method to get the value of the visible flag

**Returns:**true if visible else false

### hide

public void **hide**()

Method to hide the turtle (stop showing it) This doesn't affect the pen status

### show

public void **show**()

Method to show the turtle (doesn't affect the pen status

### setVisible

public void **setVisible**(boolean value)

Method to set the visible flag

**Parameters:**value - the value to set it to

### updateDisplay

public void **updateDisplay**()

Method to update the display of this turtle and also check that the turtle is in the bounds

### forward

public void **forward**()

Method to move the turtle foward 100 pixels

### forward

public void **forward**(int pixels)

Method to move the turtle forward the given number of pixels

**Parameters:**pixels - the number of pixels to walk forward in the heading direction

### backward

public void **backward**()

Method to go backward by 100 pixels

### backward

public void **backward**(int pixels)

Method to go backward a given number of pixels

**Parameters:**pixels - the number of pixels to walk backward

### moveTo

public void **moveTo**(int x,  
 int y)

Method to move to turtle to the given x and y location

**Parameters:**x - the x value to move toy - the y value to move to

### turnLeft

public void **turnLeft**()

Method to turn left

### turnRight

public void **turnRight**()

Method to turn right

### turn

public void **turn**(double degrees)

Method to turn the turtle the passed degrees use negative to turn left and pos to turn right

**Parameters:**degrees - the amount to turn in degrees

### drop

public void **drop**([Picture](http://docs.google.com/Picture.html) dropPicture)

Method to draw a passed picture at the current turtle location and rotation in a picture or model display

**Parameters:**dropPicture - the picture to drop

### paintComponent

public void **paintComponent**([Graphics](http://java.sun.com/javase/6/docs/api/java/awt/Graphics.html?is-external=true) g)

Method to paint the turtle

**Parameters:**g - the graphics context to paint on

### drawInfoString

public void **drawInfoString**([Graphics](http://java.sun.com/javase/6/docs/api/java/awt/Graphics.html?is-external=true) g)

Method to draw the information string

**Parameters:**g - the graphics context

### toString

public [String](http://java.sun.com/javase/6/docs/api/java/lang/String.html?is-external=true) **toString**()

Method to return a string with informaiton about this turtle

**Overrides:**[toString](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true#toString()) in class [Object](http://java.sun.com/javase/6/docs/api/java/lang/Object.html?is-external=true) **Returns:**a string with information about this object

| | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-all.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/SimpleSound.html)   [**NEXT CLASS**](http://docs.google.com/Sound.html) | [**FRAMES**](http://docs.google.com/index.html?SimpleTurtle.html)    [**NO FRAMES**](http://docs.google.com/SimpleTurtle.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
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