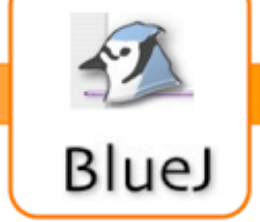

forever
imagine
program
share
Creating a Game with
SCRATCH
LITTLE CRAB GAME

FREE COMPUTER SCIENCE TOOLS

	Scratch	Alice	Media Computation / drjava	Greenfoot	BlueJ	NetBeans	Java
FEATURES	**Simplest tool** **Ages 5-15** •Drag and drop code blocks •2D graphics frameworks interaction	**Simpler tool** **Ages 8-22** •Drag and drop code blocks •3D graphics frameworks interaction	**Less simple** **Ages 12-22** •Interactive interpreter code typing •Media computation helper classes	**Less simple** **Ages 13-25** •Type,compile, run, debug •2D gaming framework interaction via 5 Java classes	**Less simple** **Ages 15-25** •Type, compile, run, debug •No default graphics framework environment	**Complex tool** **Ages 15-25** •Type, compile, run, debug •No default graphics framework environment	**No/Any tool** **Ages 16+** •Type, compile, run, debug •No default graphics framework environment
TOOLS							
TEACHING CONCEPTS	• Sequence • Iteration • Conditional Logic • Variables • Data Structures (dynamic lists) • Events Handling • Parallel Execution • Synchronization • Random Numbers • Boolean Logic • Dynamic Interaction • User Interface Design • Publish projects as Java applets on scratch.mit.edu	• All Scratch concepts plus.. • Procedures and Functions • Parameter Passing & Return Values • Recursion • Defining Classes of Objects • Inheritance • Text Input	• All previous Alice concepts, excluding user interface design • Manipulation of audio, images, video through media computation helper classes – see mediacomputation.org • All Java Programming Language Features Available • Interpreted mode is great step from drag and drop code blocks (no errors possible) to type – compile – run – debug (all errors possible)	• All previous Alice concepts plus... • 5 Java classes encapsulate 2D gaming and simulation concepts • All Java Programming Language Features Available	• Simplest Java IDE • All Java Programming Language Features Available	• Complex IDE • Multiple programming languages available (Java, Ruby, Groovy, Python, PHP, JavaScript, etc.) • Tooling covers mobile and embedded, enterprise, all avenues	• Programming Language common to Alice, Dr. Java, Greenfoot, BlueJ and NetBeans environments • All Java Programming Language Features Available • Tool / environment agnostic

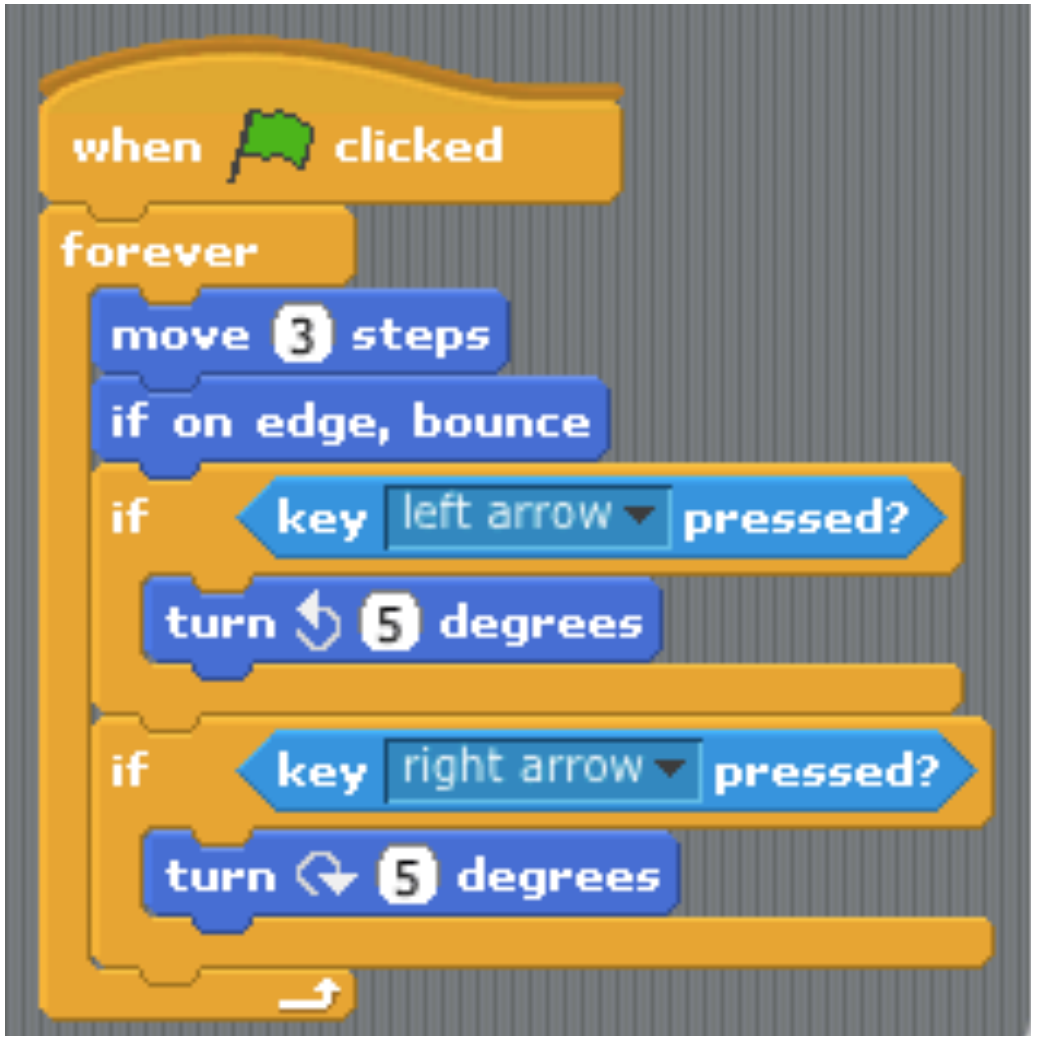
SCRATCH is free at http://scratch.mit.edu and runs on Windows, Mac and Linux

Scratch Project: Little Crab

Phase	 Scratch	Concepts	Game
1. Get Moving	Motion, Control	movement, turning, event handling	get that crab moving!
2. Worms	Looks, Sound, Control, Sensing	collision, visibility, audio	give the crab something to eat!
3. Lobsters	Motion, Looks, Sound, Control, Sensing, Operators	collision, visibility, audio	add some crab predators!
4. Animation	Looks, Control, Operators, Variables	animation	make it look good!
5. Game Over	Motion, Looks, Sound, Control, Sensing, Operators, Variables	messaging, variables	when crab eats the worms or lobsters eats the crab - game over!

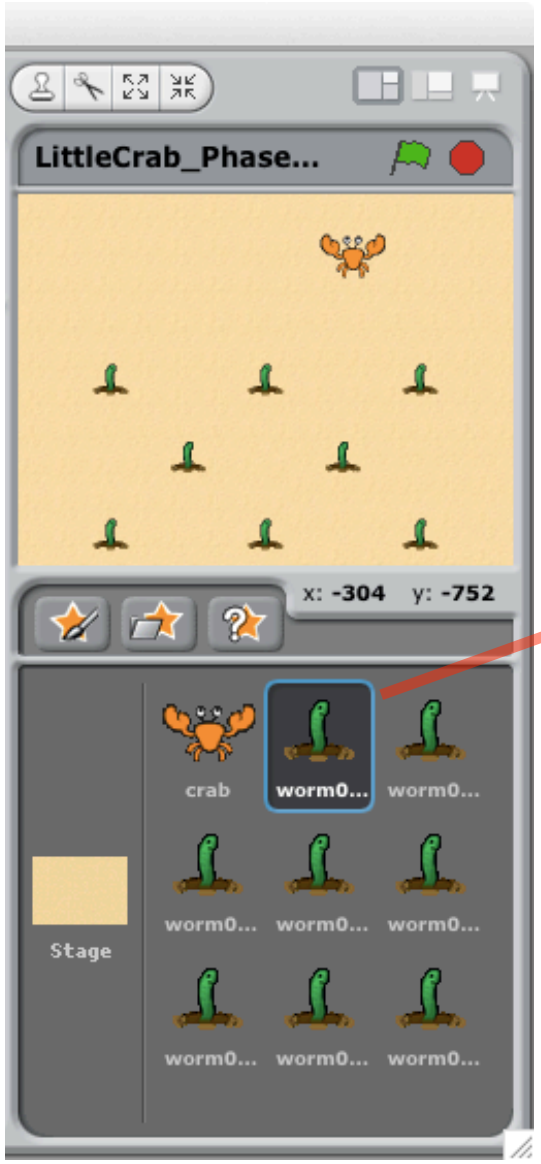
The images and sounds used in this project are downloadable as a zip file from http://bit.ly/littlecrab

Scratch Phase 1: Get Moving



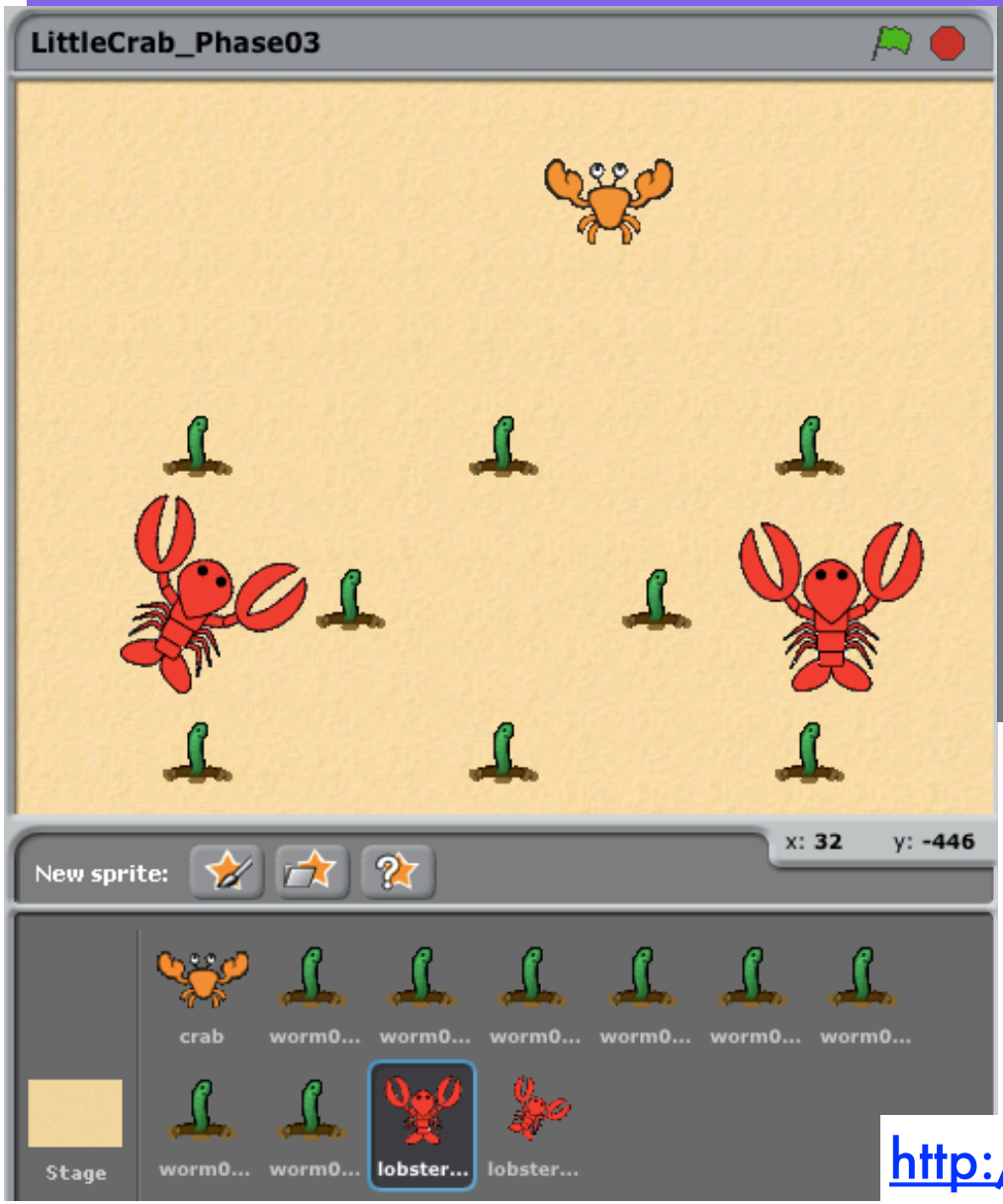
http://scratch.mit.edu/projects/dang/2103788

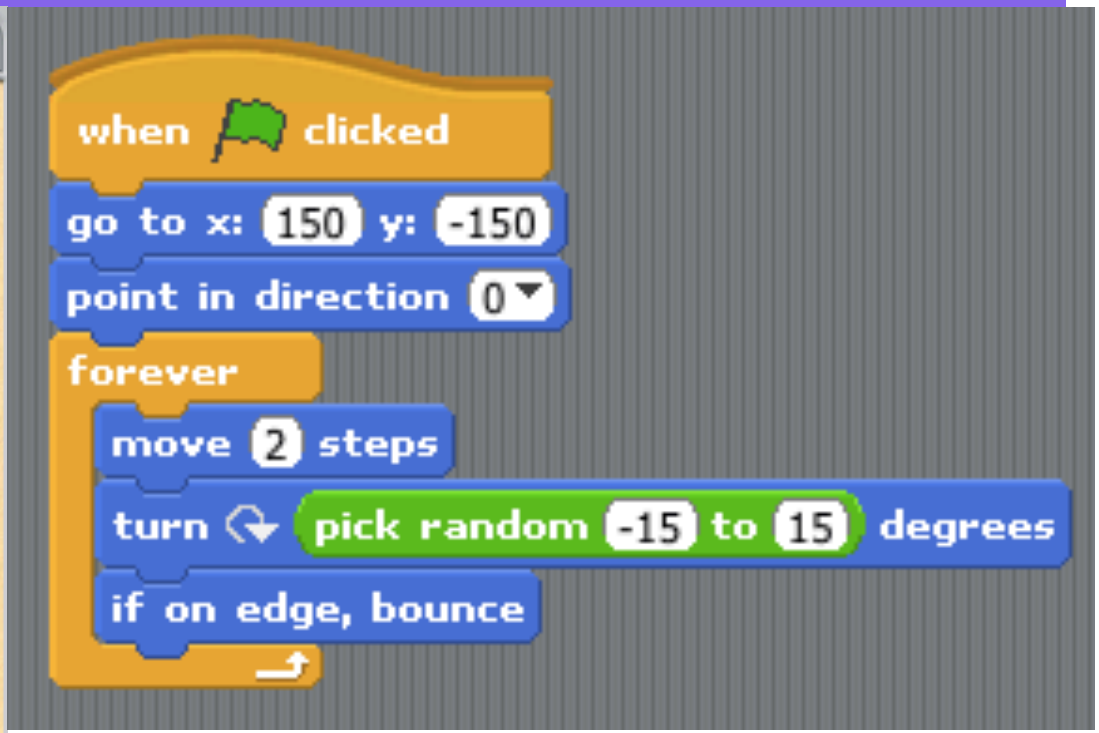
Scratch Phase 2: Add Food



http://scratch.mit.edu/projects/dang/2105788

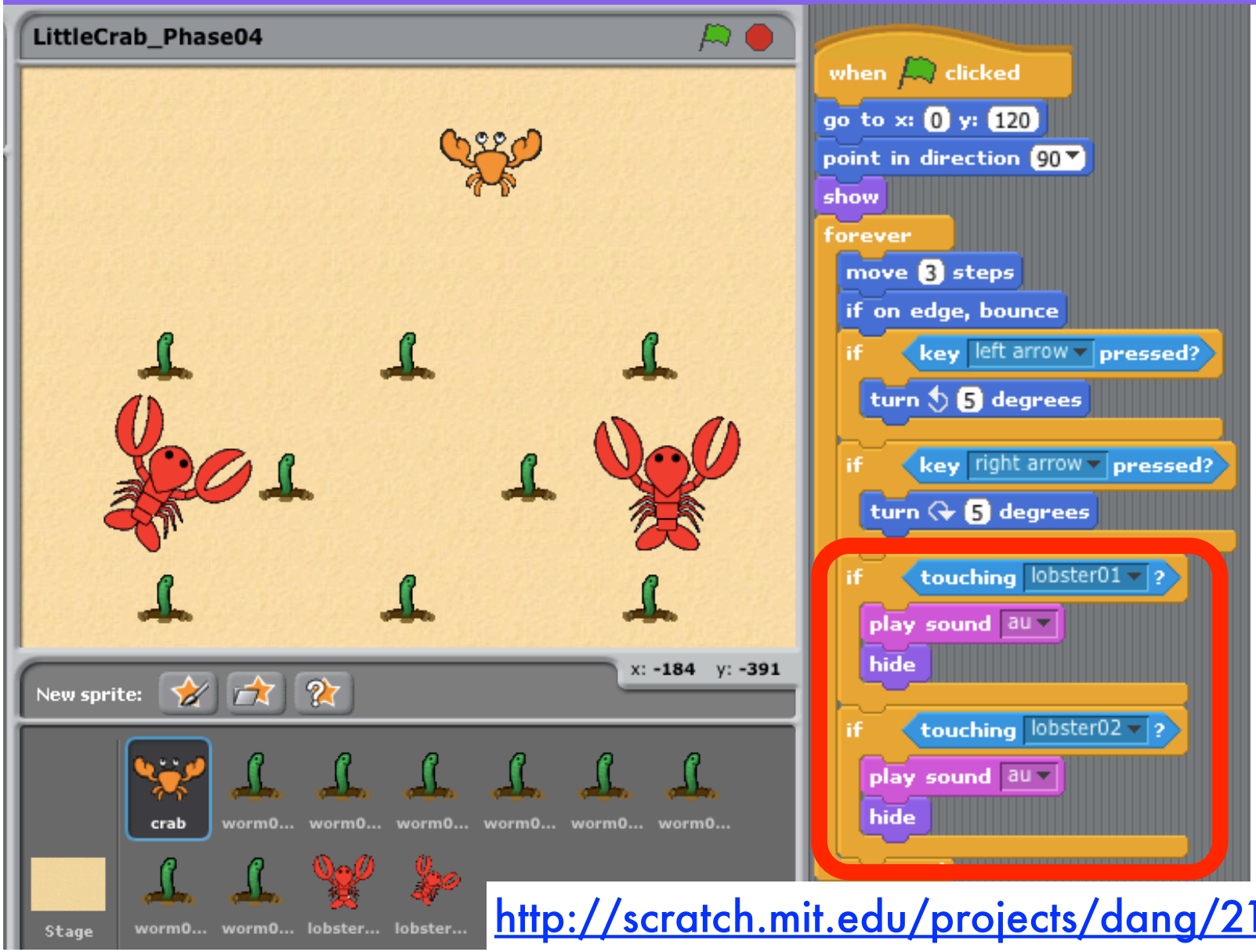
Scratch Phase 3: Predators





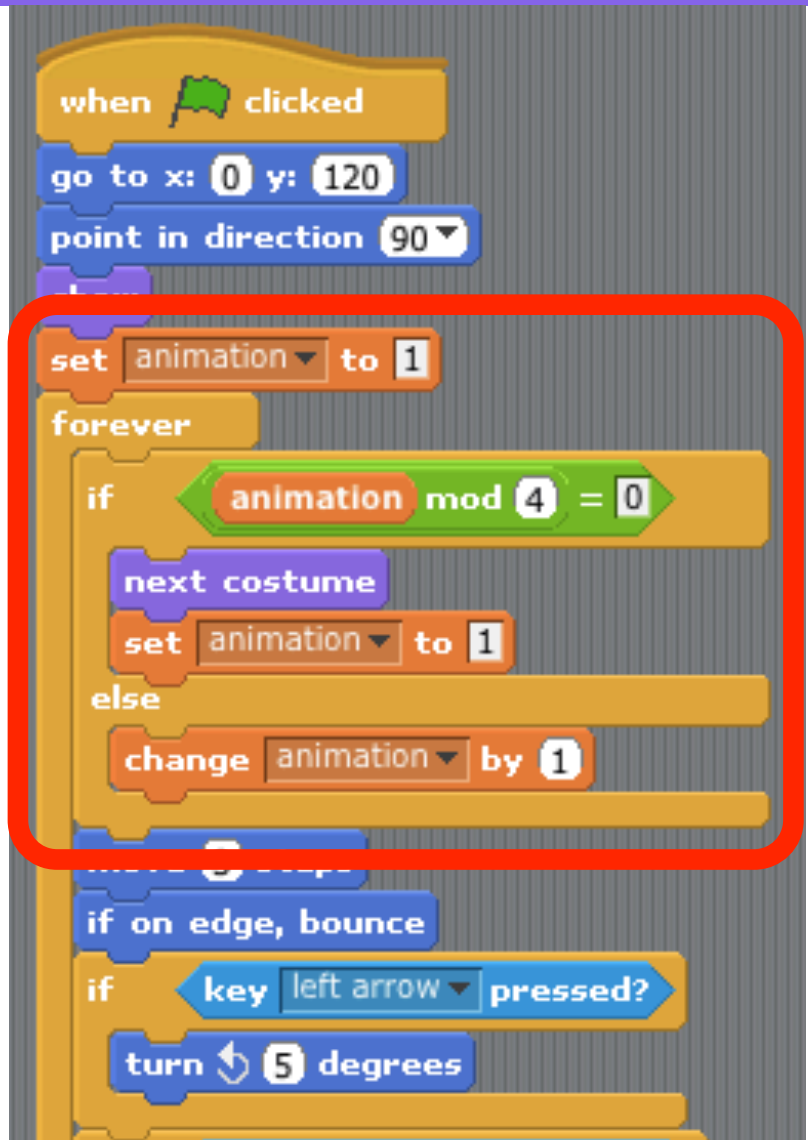
http://scratch.mit.edu/projects/dang/1400765

Scratch Phase 3: Predators



http://scratch.mit.edu/projects/dang/2106008

Scratch Phase 4: Animation



http://scratch.mit.edu/projects/dang/2108057

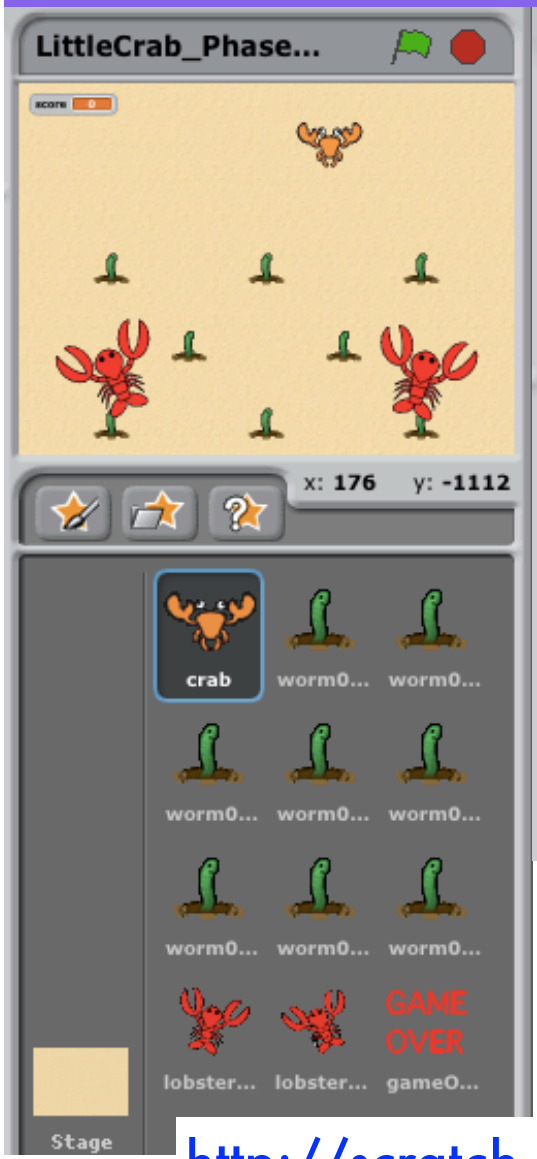
Scratch Phase 4: Animation

http://scratch.mit.edu/projects/dang/2108057

Scratch Phase 5: Game Over

http://scratch.mit.edu/projects/dang/2108271

Scratch Phase 5: Game Over



http://scratch.mit.edu/projects/dang/2108271

Scratch Phase 5: Game Over

http://scratch.mit.edu/projects/dang/2108271