CoderDojo Athenry

"Above all, be cool"

Every week:
✓ Sign in at the door

If you are new:
✓ Fill in Registration Form
✓ Ask a Mentor how to get started

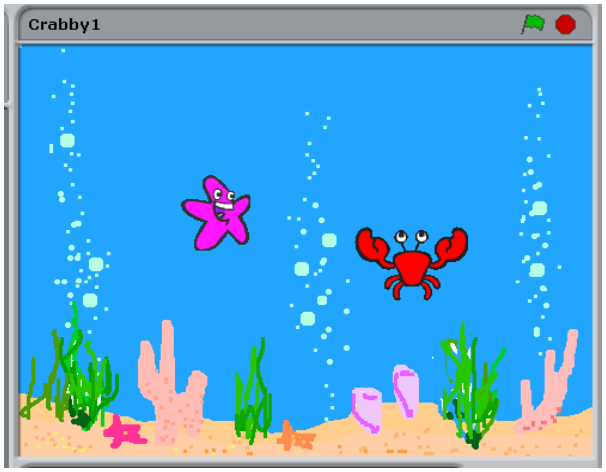
Make sure you are on the Athenry Parents/Kids Google Group: email coderdojoathenry@gmail.com

CoderDojo Athenry

Scratch Beginners

Code and notes by Michael Madden, 2012

Today's Ninja Challenge: Write Your First Computer Game!



Today's Big Ideas

What is Coding?

Who Writes Code?

What is Scratch?

How Can We Write Code?

Programming Languages

- Tell computer how to perform tasks
- C, C++, Java, Visual Basic, Python, JavaScript, PHP, HTML5

```
public static void calcWages()
{
    double rate, hrs, wage, over, total;

    rate = askForNumber("Enter Hourly Rate:");
    hrs = askForNumber("Enter Hours Worked:");

    if (hrs <= 40) {
        wage = rate * hrs;
        over = 0;
    }
    else {
        wage = rate * 40;
        over = (hrs - 40) * 1.5 * rate;
    }
    total = wage + over;

    JOptionPane.showMessageDialog(null, "Total wages are " + total);
}
```

Some Java Code

Programming Languages

Input, Output & Store Data
- E.g. text, numbers

Operate on Data
- E.g. add numbers, change text

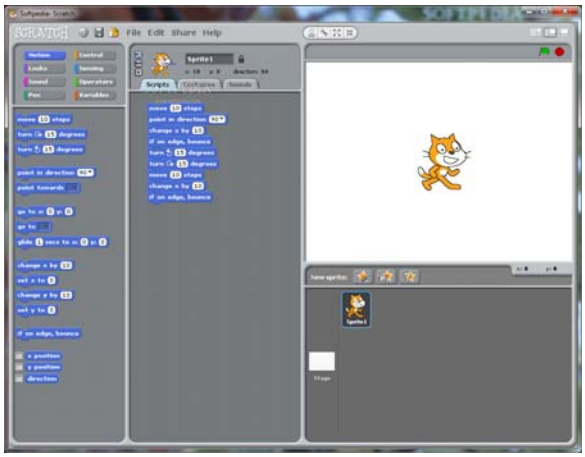
Loops
- Repeat commands several times

Decisions
- Do something IF something else is true

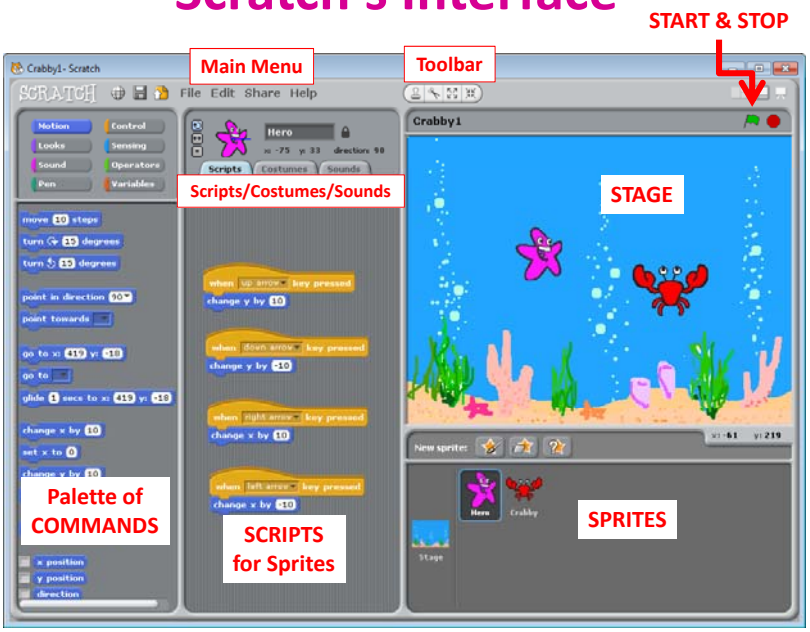
Scratch

http://scratch.mit.edu

- Free & Open Source
- Windows, Linux, Mac
- Palette of Commands
- Games & Animation
- Encourages Sharing
- Install it now!



Scratch's Interface

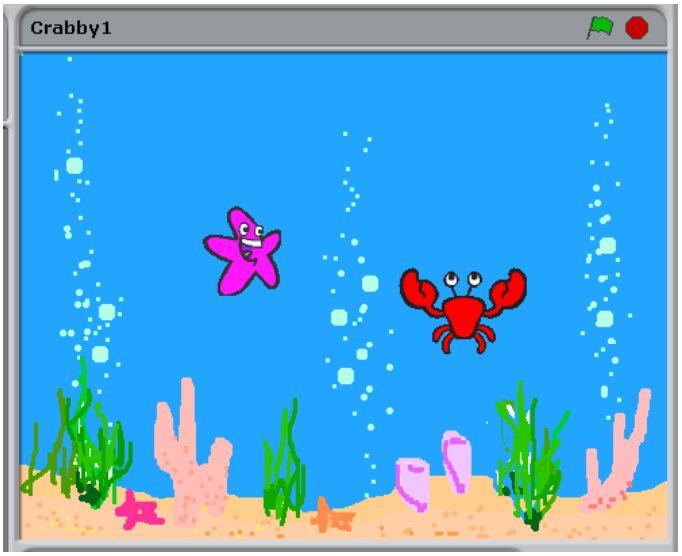


What Can You Do With Scratch?

- Animations
- Quizzes
- Arcade Games
- Web Games
- It's Up To You!

Let's look at some examples …

Our First Game: Patrick v. Krabby



How to Get Started

Plan the Design

- Think first!
- Start simple: add more later

Create First Character

- Design it: appearance & behaviours
- Write script (Code) to control its behaviours

Test It

- Any bugs? (Not working as expected)
- Debug and Improve

Extend It

- More Characters, More Behaviours, More Testing!

How to Make Progress

Our Creative Coding Rule:
There's More Than One Way to Do It!

Try things out and iterate

Save copies: go back if it doesn't work

Talk to others, share ideas, learn from their ideas, improve on their ideas!

Examine other people's code on the Scratch website & upload your code

Steps To Make Our Game

Interactive demo of these steps in Scratch …

Final version: http://scratch.mit.edu/projects/cdathenry/2485560

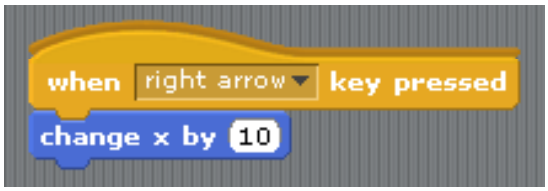
Create a Sprite

New Sprite:
Select from existing designs

Tip:
Default size is big relative to stage: this shrinks it

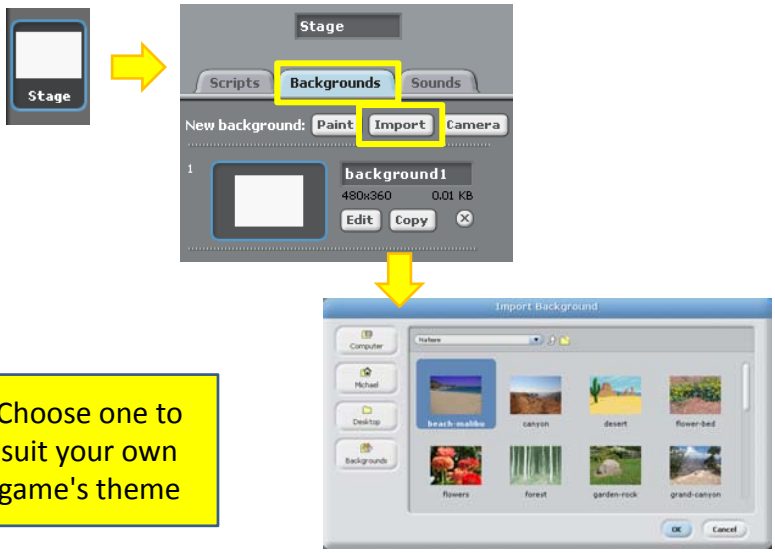
Name him:

Make it Move Under Your Control



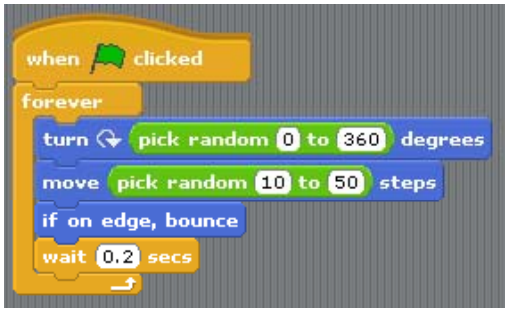
Now figure out how to make it respond to the other arrow keys …

Change the Background

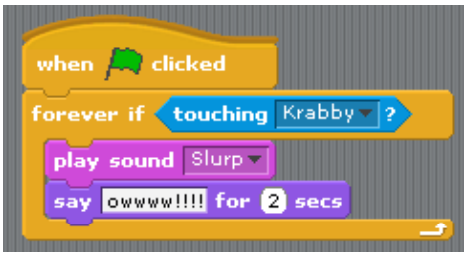


Choose one to suit your own game's theme

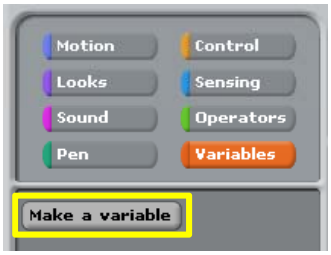
Create Another Sprite that Moves at Random

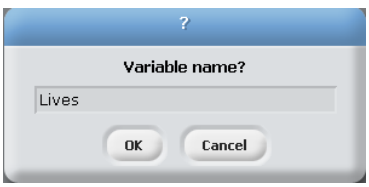


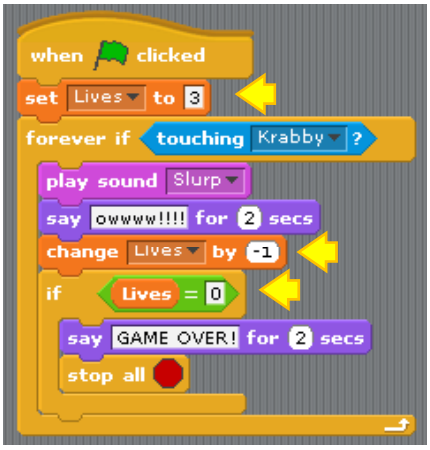
Make Things Happen When They Touch



Keep Track of Lives







More Things to Try …

1. Make a second bad guy that you have to keep away from, and that moves in a different way.
   ***Hint**: Duplicate first bad guy, then import a different costume for it, and change its script so that it moves in a different way. For example, you could make him point in a random direction (in range 1-360) when the flag is clicked, and after that just keep moving some steps, and bounce if on the edge. You might have to update the code for lives, too.*

2. Add some treasure that will give you extra lives.
   ***Hint**: Add a sprite that looks like treasure. Don't add code to make it move, but do add code so that if the good guy touches it, it changes LIFE by 1 and plays a happy noise. After you have tested it and made sure it works, duplicate it.*

At the End …

Upload your project to the Scratch Website
user: **cdathenry** password: _____

Access it from home

Improve it

Show your friends!

Keep In Touch!

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