



Prof. Todd Neller  
Gettysburg College

# Hour of Code

- What is “coding” or “programming”?
  - Instructing a computer to solve a problem.
  - Computer Scientists call programs “algorithms”.
- Who can code?
  - You can. You **learn** algorithms from a young age (example: multidigit addition). You can also **express** algorithms with practice.

# Why Code?

- Why should I code?
  - It's EMPOWERING. "Knowledge is power." Coders work the world's knowledge.
  - It's PROFITABLE. There's a huge need for good computer problem solvers. Large demand + small supply = \$\$\$
  - It's FUN. Being a good problem solver is creative and satisfying.

# Blockly Commands

Statements

Move forward



Turn left/right

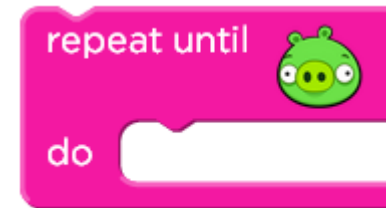


Loops

Repeat \_\_\_ times



Repeat until \_\_\_

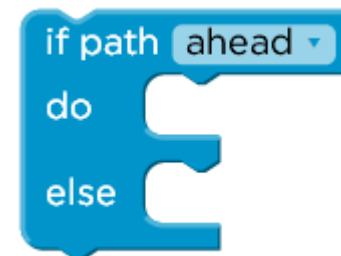


Decisions

If path \_\_\_ do \_\_\_



If path \_\_\_ do \_\_\_ else \_\_\_



# Coding is Like Legos

- Unlike spoken languages, computer languages have few words and simple grammar rules.
- With very few types of code “pieces”, we can construct code of amazing complexity.
- Learning how to code
  - isn’t so much about the pieces, as
  - learning interesting patterns for combining them.

# Python Number Guessing Game

```
import random
secret = random.randint(1, 100)
print('I am thinking of a number from 1 to 100.')
gameOver = False
while not gameOver:
    guess = int(input('Your guess? '))
    if guess == secret:
        print('Correct!')
        gameOver = True
    else:
        print('Lower.' if guess > secret else 'Higher.')
```

# To Remember

- Coding has *simple* pieces (statements, loops, & decisions) that can be assembled in *complex* ways to solve difficult problems.
- You've *learned* algorithms. You can learn how to *express* them and have the computer do it!
- The computer is a **power tool for the mind**. Knowing how to code is like having a super power.

# Next Steps

- <http://tinyurl.com/gburghoc>
  - this presentation,
  - more Blockly mazes,
  - free coding resources,
  - and more.
- **Enjoy learning more about coding!**