

#### **Lesson 4** - Follow Unit 6 lesson plan

(<http://www.bootstrapworld.org/materials/spring2016/courses/bs1/units/unit6/index.html>), until it gets to the game, replace with a bounce program.

**Video for teachers:** <https://www.youtube.com/watch?v=OMQO66wWqjk>

#### **Review** - 15 minutes (this seems long!)

What datatypes have you seen so far? Can you think of Number values? String values? Image values? What functions have we seen so far?

Expressions are functions with values. Example plus. Give me a function that evaluates to a number - give me an example expression (not the answer or output - just the expression) . Give me a function that evaluates to an Image - give me an expression.

Unit 6 Warmup activity sheet.

#### **Booleans** - 10 minutes

- Teach <, >, =
- Booleans on true or false
- string=?
- Contracts

Expressions can have sub expressions (> (+ 2 4) (- 8 3))

#### **Onscreen 1.0: Sam the butterfly** - 25 minutes (

- Pages 19-21 workbook
- Cage.rkt <http://www.wescheme.org/view?publicId=1pLdvPhmYa>  
(kari's changes)
- Make a safe left, safe top safe bottom

#### **and/or** - 10 minutes?

- Page 22 workbook (or true false true false)

#### **Onscreen 2.0:** 20 minutes (skip game)

- Use functions safe-left, safe-right - Why?
  - Good code design - simple functions -> complex functions (testing)
  - Names better than formulas - easier to read
- **bounce.rkt**
  - Kari will create bounce game
  - Students write bounce-left, bounce-right, bounce-top, bounce-bottom
  - Test with x-movement only, y-movement only, x/y
  - Change speed
  - Change image

