Exercises

A function $f(x)$ is shown in green. The sliding purple window may contain a section of an antiderivative of the function, $F(x)$.

Where does the function in the sliding window correspond to $F(x)$?

Programming

```javascript
// The number of branches each branch splits into
var branchingFactor = 3;

// The angle between the branches in degrees
var angleBetweenBranches = 30;

// Controls how much smaller each level of the tree gets
var scaleFactor = 0.7;

// The number of levels of the tree drawn
var numLevels = 6;

// The length of the branches
var baseBranchLength = 80;

var forward = function(distance) {
    line(0, 0, 0, distance);
    translate(0, -distance);
}
```

Videos

The neuron

Teacher Dashboard

Teacher Resources  Manage Students  Class Stats

REPORTS
- Progress Summary
- Progress Report
- Daily Activity
- Progress Over Time
- Energy Points
- Goals

Shows you which skills your class has mastered.
Platforms are people, too :) 

Motivated by “what works”

A/B tests, measured by learning outcomes.
We must *design* for research

No system is infinitely flexible.

... so we design for flexibility in those dimensions most likely to *work*.
Design Example #1 - Dashboard
Design Example #1 - Dashboard

Khan Academy Dashboard.

- **UP NEXT FOR YOU**
  - **MASTERY CHALLENGE**
    - Level up multiple skills at the same time.
    - **Line graph intuition**
      - Adjust the slope and y-intercept of a line to make it go through given points.
    - **Recognizing rays, lines, and line segments**
    - **Reading stem and leaf plots**
    - **Even and odd functions**
      - Determine if a graphed function is even, odd, or neither.

- **MISSION PROGRESS**
  - 17% mastered
  - 356 skills need practice

- **YOU FINISHED!**
  - Understanding dividing fractions by fractions
Design Example #1 - Dashboard

Flexible w/r/t:

Curriculum
Content modules
Mastery criteria; pacing
Mixing and spacing
Task modalities
Design Example #2- Psych Intervention

Fractions

*The more you learn today, the smarter you’ll be tomorrow!*  
LEARN MORE

Move the orange dot to $\frac{11}{4}$ on the number line.
Design Example #2 - Psych Intervention
Design Example #2 - Psych Intervention

Flexible w/r/t:

Operative mindset
Intervention modality
Triggering mechanism
A Typical, success-based Progression

1) In-house experiment
2) Semi-automated
3) Full (possibly crowd-sourced) automation.
Research @ Scale

metacognitive, psychological content and curation modeling and algorithms**

<your research area here>

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