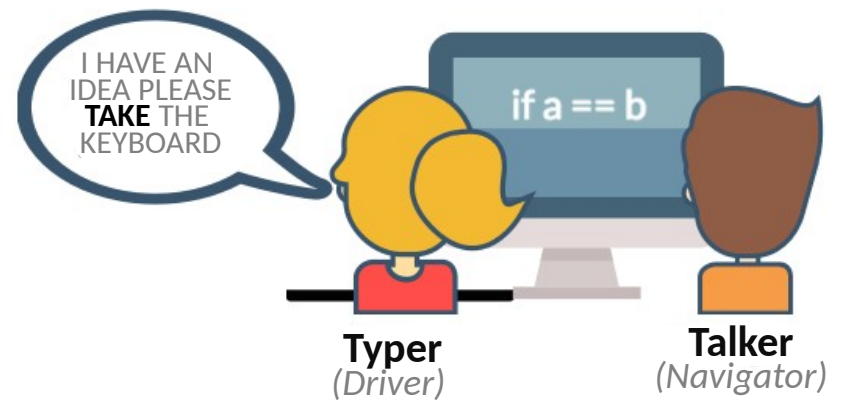


**TRADITIONAL**



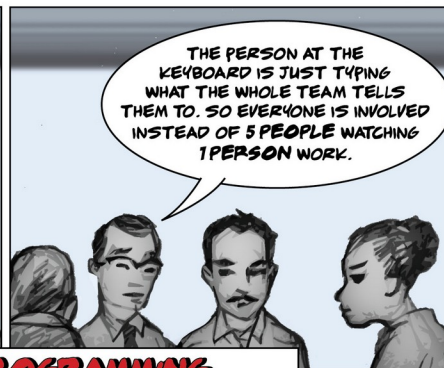
**"STRONG STYLE"**

Pair Programming

" **Mob Programming** is all the brilliant people working on the **same thing**, at the **same time**, in the **same space**, on the **same computer**."

-- Woody Zuill



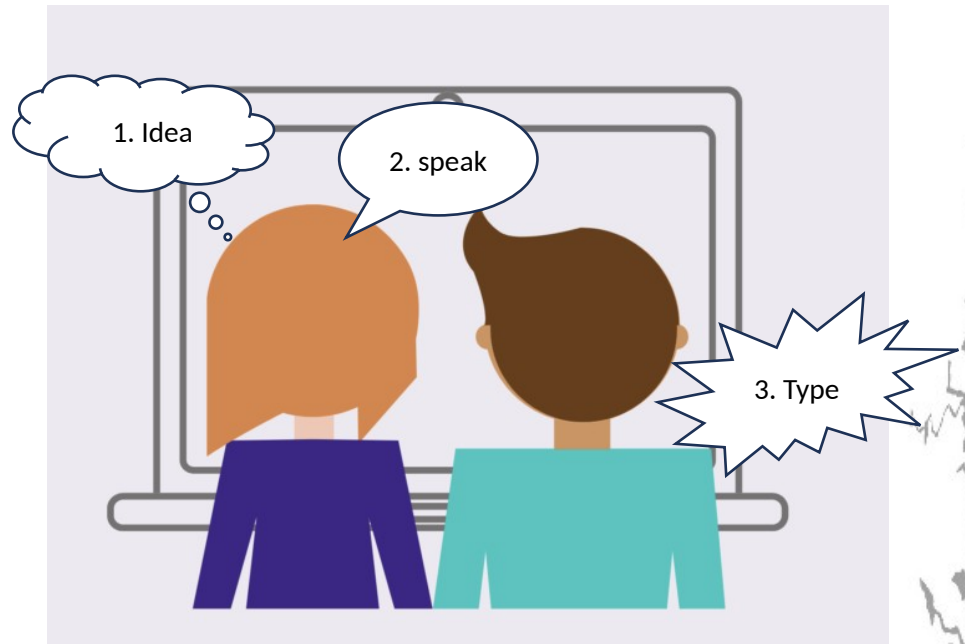


## THE MOB PROGRAMMING GUIDEBOOK

Llewellyn Falco & Maaret Pyhäjärvi



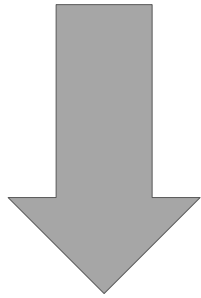
“For an idea to go from  
**your head** to the **computer**  
it must go through  
**someone else’s hands**”



Strong Style  
Pair Programming

**Speak at the highest level of abstraction**

go down as needed



**Intention**

- "write a for loop"

**Location**

- "at line 34 and 1/2 "

**Details**

- "for(int i = 0; ...."



# The 5 Whys

Define the Problem

*The client refused to pay the progress payment*



Why is it Happening?

*we completed the activity late*



Why is it Happening?

*It took longer than we estimated*



Why is that?

*We couldn't procure enough material*



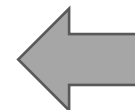
Why is that?

*We didn't purchase on time*



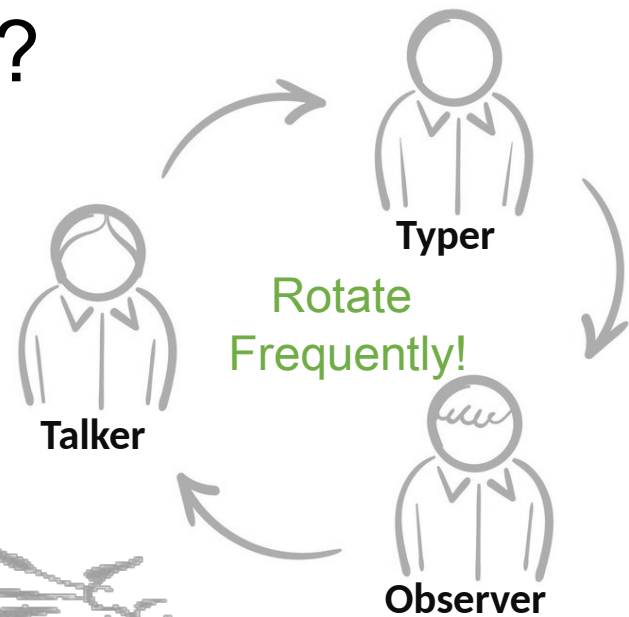
Why is that?

*We didn't analyze the work schedule*



Root Cause

When is the last time you  
rotated ?



# Rotation Styles



**On Task**



**On Time**



**On Idea**

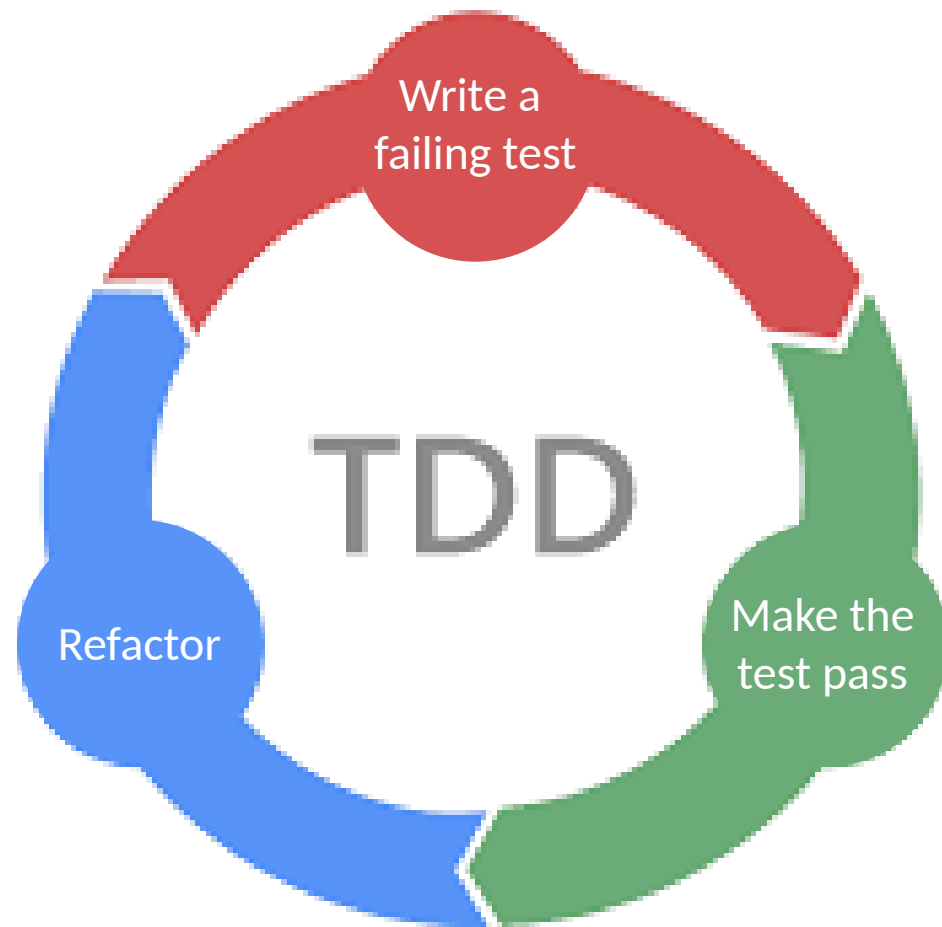




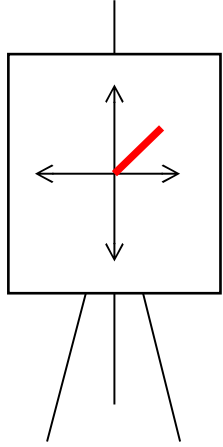
*Kindness  
Consideration  
and  
Respect*

**Working Agreements**

*Make for better pairs & mobs*



Start Here!  
with **drawing**  
and natural language



Whiteboard

```
// Create side (0,0) - (3,4)  
// Verify length
```

English

Testing Circle

Code

Result

```
Side (0,0) - (3,4) length = 5
```

```
Side s = new Side(0,0,3,4);  
Approvals.Verify(s + " length = " + s.Length);
```

When was the last time you  
ran your tests?

1 minute?

3 minutes?

more?



# Test && Commit || Revert (TCR)

Advanced  
Technique

What it is

Every time you run your tests, you will either:

1. Commit everything, because **all tests passed**
2. Revert everything *(or everything except the test)* because **it failed**



Kent Beck  
Creator of TCR  
& Extreme  
Programming

**Smaller steps**  
**Faster Feedback**  
**Better safety net**

Java starter project



[github.com/LarsEckart/tcr-  
extension.starterproject](https://github.com/LarsEckart/tcr-extension.starterproject)

You

Ain't

Gonna

Need

It



xkcd.com

*Write the simplest thing  
that could possibly work*



**Z**ero

**O**ne

**M**any

**B**oundaries

**I**nterfaces

**E**xceptions

**S**cenarios

*Guide your tests by  
looking at these 7 cases*

Blog



[blog.wingman-sw.com/tdd-guided-by-zombies](http://blog.wingman-sw.com/tdd-guided-by-zombies)



Pattern by  
James Grenning

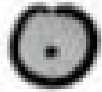
1. Specification - what am I going to write?
2. Feedback - did it work?
3. Regression - does it still work?
4. Granularity - why did it stop working?

## The 4 Benefits of Tests

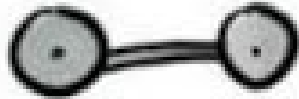
Blog



Not like this....



1



2



3



4

Like this!



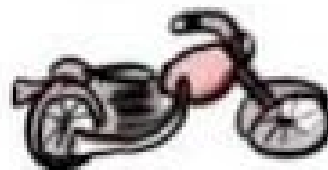
1



2



3



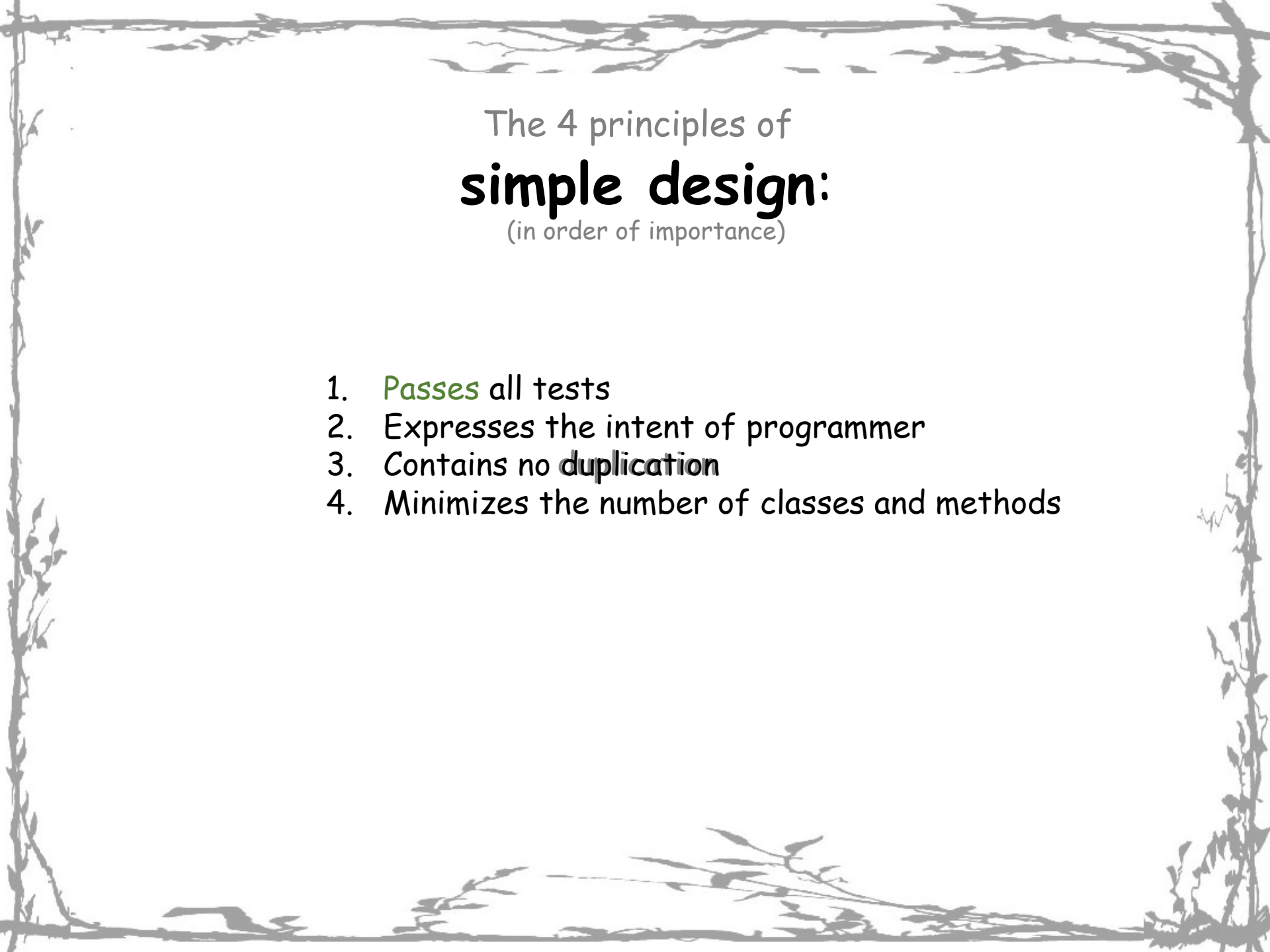
4



5

Hervik Kriberg

Building an MVP  
(minimal viable product)

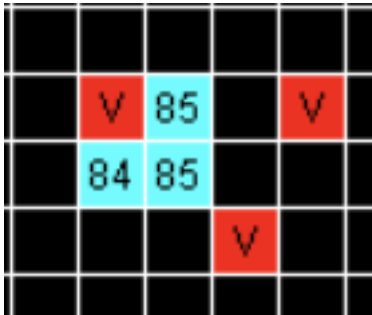


# The 4 principles of **simple design:** (in order of importance)

1. **Passes** all tests
2. Expresses the intent of programmer
3. Contains no **duplication**
4. Minimizes the number of classes and methods

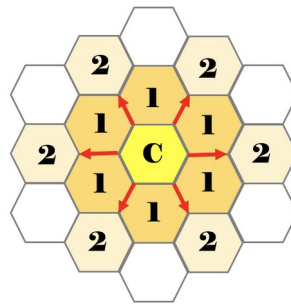
# Variations to Game of Life:

*Vampires*



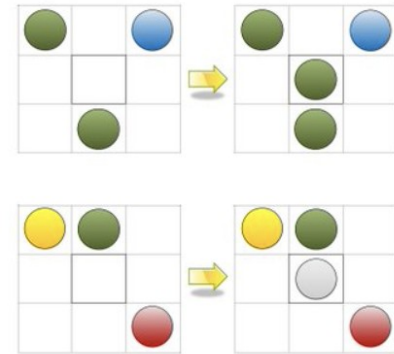
*Cells age,  
turn into undying vampires,  
that kill each other*

*Hex*



*The board isn't square*

*Cells with Friends*



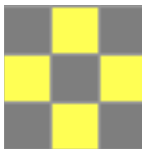
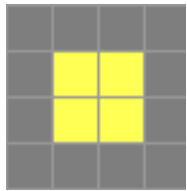
*Cells have color  
which is passed onto their  
children*

*More info at:*

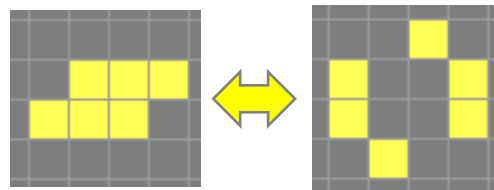
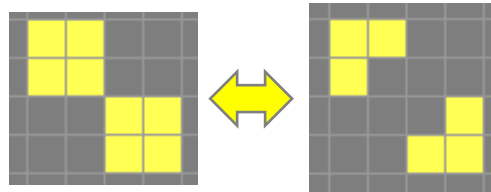
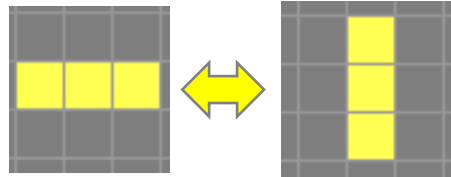


# Interesting Game of Life Structures

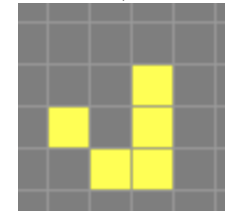
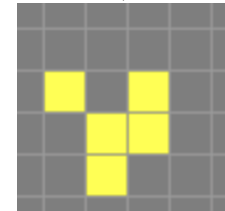
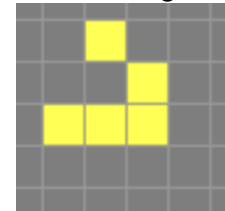
*Unchanging*



*Oscillating*

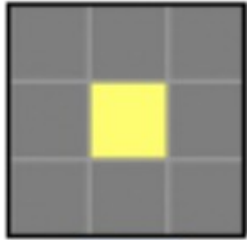


*Traveling*



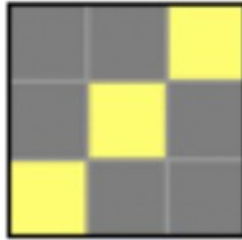


1 neighbor or less



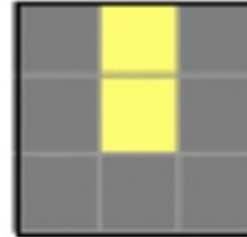
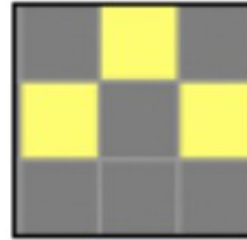
Middle square  
**dies**  
from **Starvation**

2-3 neighbors



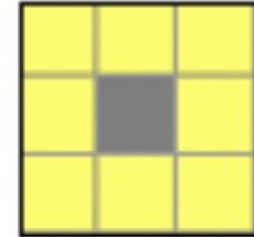
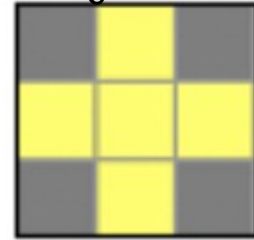
Middle square  
**survives**  
from **Subsistence**

3 neighbors



Middle square  
**is born**

4 or more  
neighbors



Middle square  
**dies**  
from **Overpopulation**

## Game of Life Rules

# Need an environment?

CyberDojo  
[cyber-dojo.org](https://cyber-dojo.org)

*Online coding and testing in many languages*

Starter Projects  
[github.com/LearnWithLlew/StarterProjects](https://github.com/LearnWithLlew/StarterProjects)

*Clone and go*

exercism  
[exercism.org](https://exercism.org)

*64 languages with setup instructions*

Gitpod.io  
[gitpod.io/#<http://your\\_github\\_url>](https://gitpod.io/#<http://your_github_url>)

*VS Code online with linux  
Can install and run via the terminal*



Elm



Haskell



CoffeeScript



REASON  
ML



OCaml

./jq



Rust



TypeScript



Java



python



Swift



Perl



Go



Ruby

LabVIEW



Kotlin



elixir



ERLANG



Prolog




clojure



# Schedule



What Surprised you today?



What would you like to **try**  
today?



# What did you learn today?

I TRY NOT TO MAKE FUN OF PEOPLE FOR ADMITTING THEY DON'T KNOW THINGS.

BECAUSE FOR EACH THING "EVERYONE KNOWS" BY THE TIME THEY'RE ADULTS, EVERY DAY THERE ARE, ON AVERAGE, 10,000 PEOPLE IN THE US HEARING ABOUT IT FOR THE FIRST TIME.

FRACTION WHO HAVE HEARD OF IT AT BIRTH = 0%

FRACTION WHO HAVE HEARD OF IT BY 30  $\approx 100\%$

US BIRTH RATE  $\approx 4,000,000/\text{year}$

NUMBER HEARING ABOUT IT FOR THE FIRST TIME  $\approx 10,000/\text{day}$

IF I MAKE FUN OF PEOPLE, I TRAIN THEM NOT TO TELL ME WHEN THEY HAVE THOSE MOMENTS. AND I MISS OUT ON THE FUN.

"DIET COKE AND MENTOS THING"? WHAT'S THAT?

OH MAN! COME ON, WE'RE GOING TO THE GROCERY STORE.

WHY?

YOU'RE ONE OF TODAY'S LUCKY 10,000.



*Many people have **strong opinions**  
about things they have **not experienced***

## Hate it with data



*Don't make up **your mind**  
about something without **trying it.***

# Deliberate Practice

## THE FIVE PRINCIPLES OF DELIBERATE PRACTICE



**PUSH  
BEYOND**  
one's comfort  
zone



Work toward  
well-defined,  
**SPECIFIC  
GOALS**



**FOCUS**  
intently on  
practice  
activities



Receive and  
respond to  
**HIGH-QUALITY  
FEEDBACK**



Develop a  
**MENTAL  
MODEL**  
of expertise