

Warm Up Quiz

Form groups of three people. Get to know each other.
Pick a team name.

While you wait, share with your team:

**What is one thing you learned yesterday
that surprised you?**



Teach the Tidyverse



Garrett Grolemund

Data Scientist, Educator

January 2019

RStudio

HELLO
my name is

Kate

HELLO
my name is

Garrett



@StatGarrett

Review

R

And the winner is...

Poll

Have you attended another workshop?

Poll

Did the workshop(s) rely on...

Active

?

Passive

?

Passive Learning

Attend a lecture

Told how to solve it

Told how it will work

Hear it explained

A **long** learning session that covers a lot of ground

Active Learning

Try it

Do exercises

Experience it for yourself

A detail from Raphael's fresco 'The School of Athens' in the Vatican Palace. It depicts the ancient Greek philosophers Plato and Aristotle standing in a classical setting with other figures. Plato, on the left, is shown pointing upwards, symbolizing the idealistic philosophy of Forms. Aristotle, on the right, is shown holding a sphere, symbolizing his focus on natural philosophy and the physical world.

Day 1

Day 2

Goal: Use principles to build a workshop

9:00 - 10:30	Choose the curriculum
	Morning Break
11:00 - 12:30	Craft an explanation
	Lunch
2:00 - 3:30	Build exercises (and provide software)
	Afternoon Break
4:00 - 5:30	Make Slides. Assess.

Workshops – RStudio x Master the tidyverse – RStudio x

Garrett

Secure | https://www.rstudio.com/workshops/master-the-tidyverse/

R Studio®

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MASTER THE TIDYVERSE

THURSDAY, OCTOBER 5, 2017, 9 A.M. - FRIDAY, OCTOBER 6,

WASHINGTON, DC

REGISTER



MASTER OF THE TIDYVERSE

www.rstudio.com

An introduction to R for data science

This two-day workshop covers the new book “R for Data Science” from Hadley Wickham and Garrett Grolemund. The workshop provides a comprehensive overview of what is now called the Tidyverse, a core set of R packages that are essential to Data Science. We will visualize, transform, and model data in R and work with date-times, character strings,

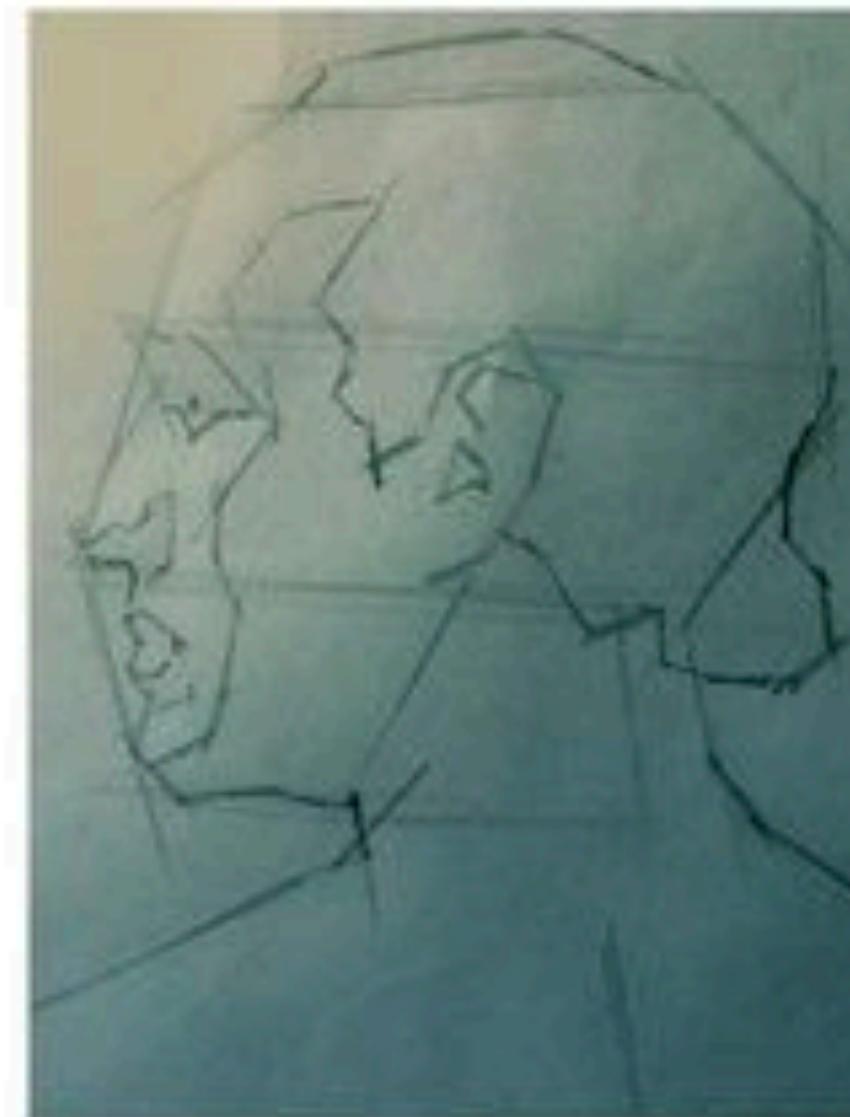
Choose the
curriculum

Goal

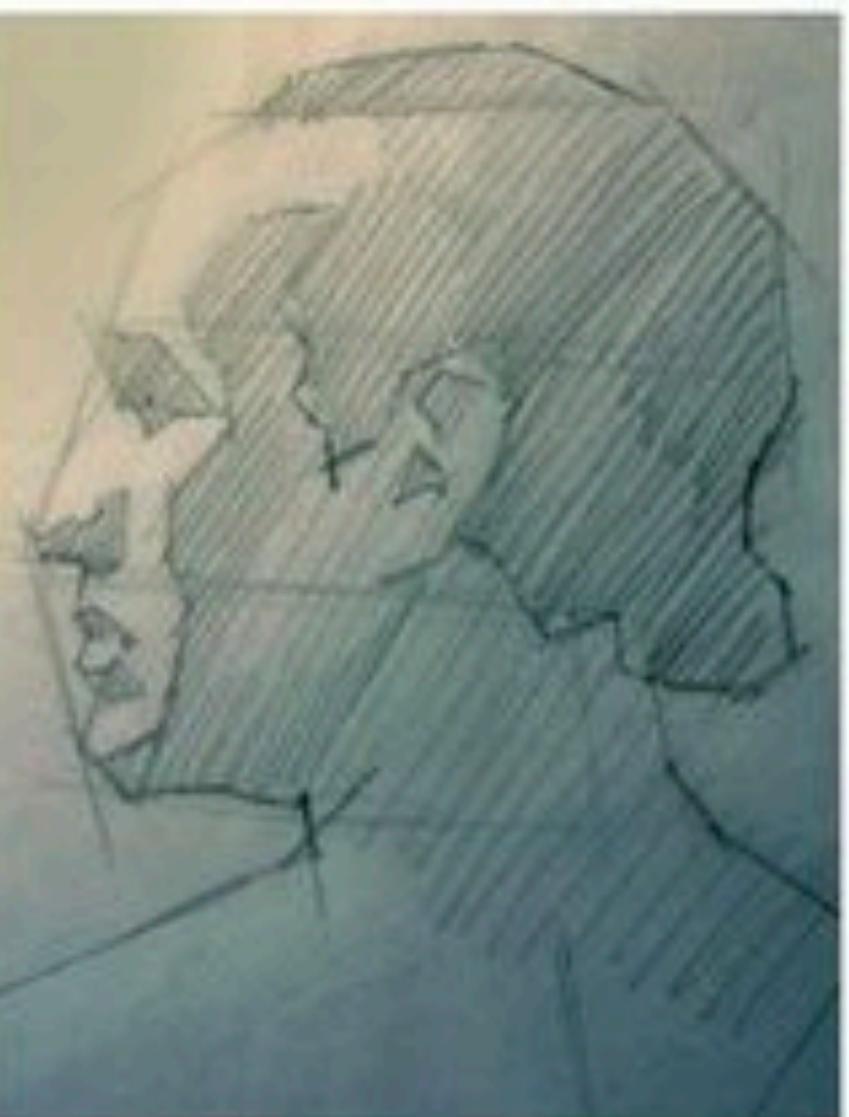
Create 2-3 outlines that you can reuse for a generic tidyverse workshop (of varying lengths).



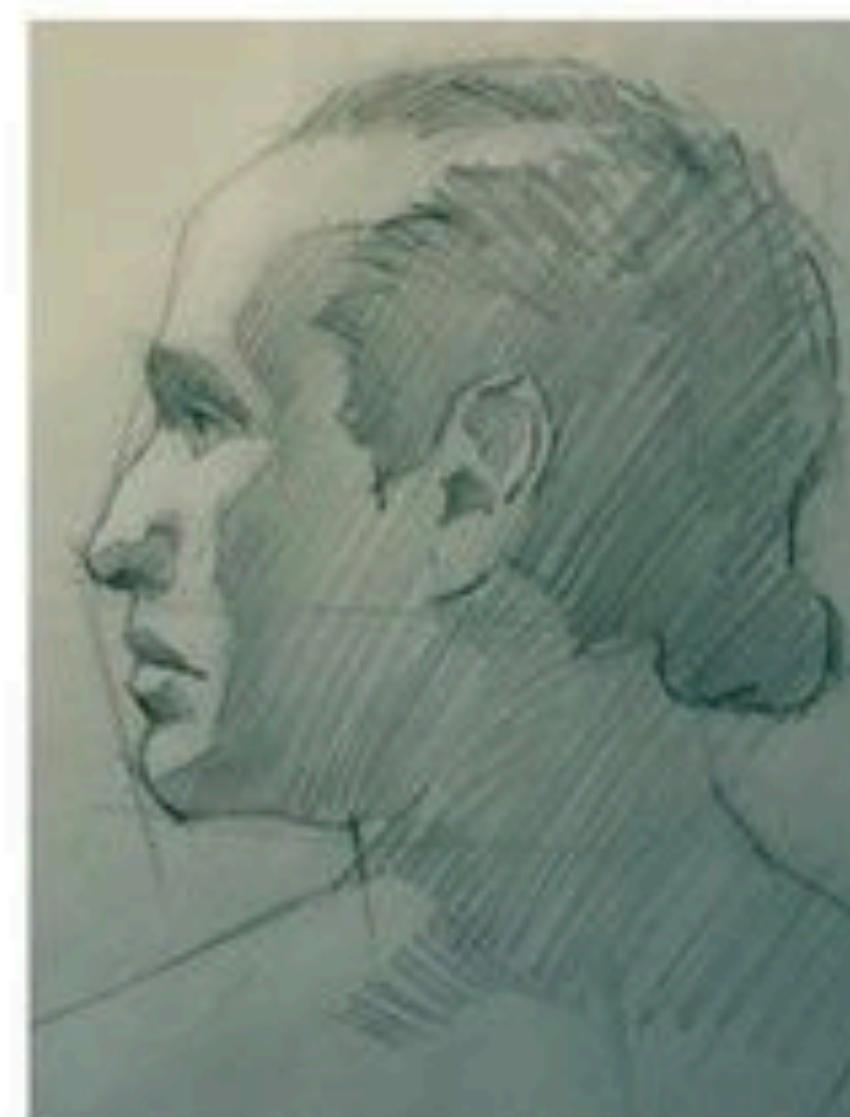
1. Initial set-up



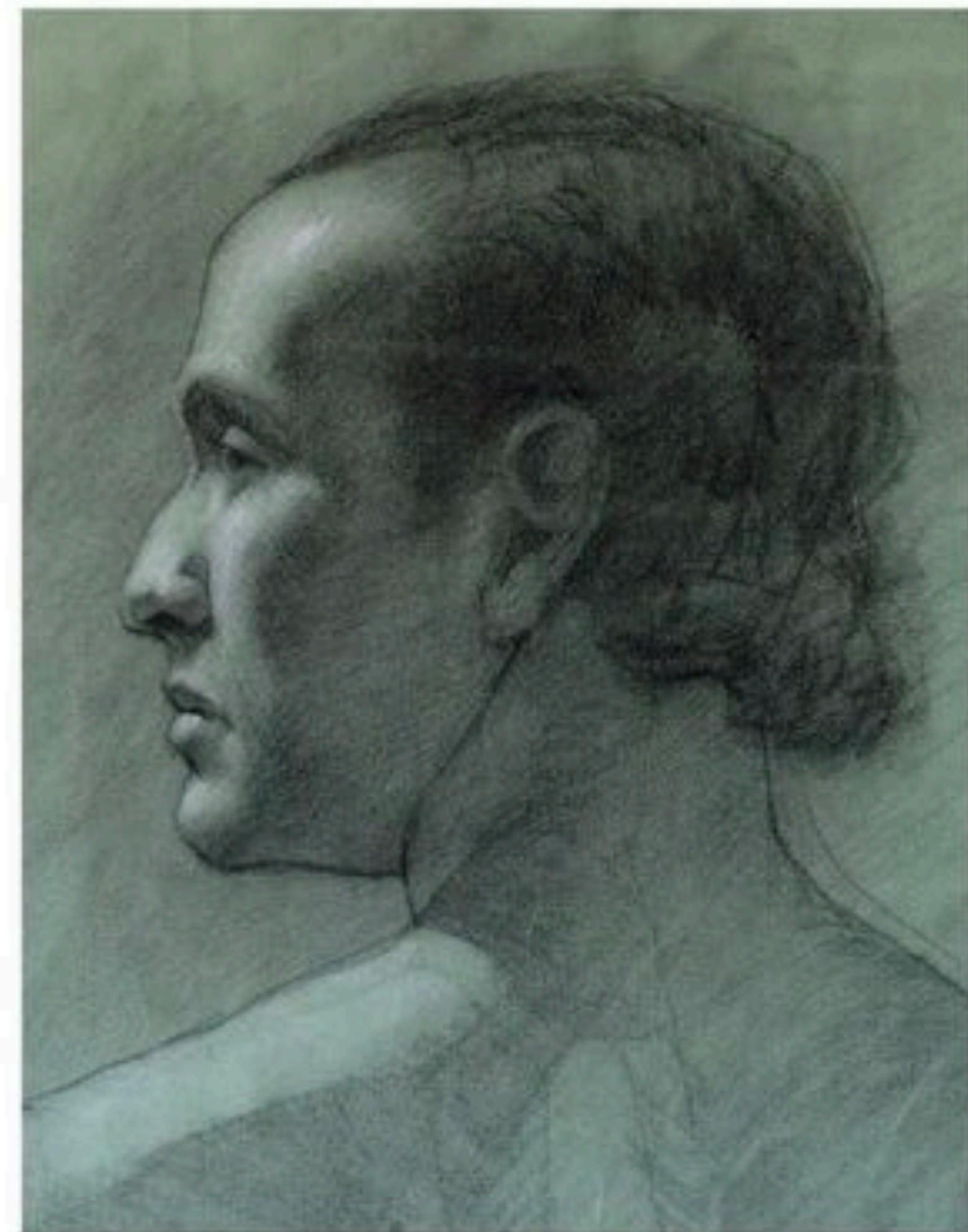
2. Find the major forms



3. Mass in the shadow shapes,
they define the light shapes.



4. Further development of the
shadow shapes.



Head study form life, charcoal and white chalk
on green paper.

Step 1: Block out the curriculum

1. learner personas
2. learner objectives
3. concept maps

Master the Tidyverse

github.com/rstudio-education/master-the-tidyverse

Editable versions for your personal use:

github.com/rstudio-education/master-the-tidyverse-instructors

Your Turn

View or download the slides from
github.com/rstudio-education/master-the-tidyverse

Scan the content and determine: Who is the intended audience? What is their background? Are you sure?

Think

03 : 00

Pair

02 : 00

Your Turn

View or download the slides from
github.com/rstudio-education/master-the-tidyverse

Scan the content and determine: Who is the intended audience? What is their background? Are you sure?

Think

03 : 00

Pair

02 : 00

ggplot2

dplyr

tidyverse

readr

tibble

- 0. Preclass loop
- 00. Introduction
 - R Notebook (exercises)
 - pdf (slides)

- 00. Reintroduction
 - pdf (slides)

1. **Visualize Data**

- R Notebook (exercises)
- pdf (slides)

2. **Transform Data**

- R Notebook (exercises)
- pdf (slides)

3. **Tidy Data**

- R Notebook (exercises)
- pdf (slides)

4. **Import Data**

- R Notebook (exercises)
- pdf (slides)

5. **Data Types**

- R Notebook (exercises)
- pdf (slides)

6. **Iteration**

- R Notebook (exercises)
- pdf (slides)

7. **Models**

- R Notebook (exercises)
- pdf (slides)

8. **List columns**

- R Notebook (exercises)
- pdf (slides)

9. Miscellaneous files

- License
- README
- nimbus.csv (a data set)

*stringr
forcats
hms
lubridate
purrr
modelr*

Learner Personas

(design for your audience)



Learner Personas

1. general background
2. prior knowledge
3. motivation or goal(s)
4. how the course will help them
5. special needs

Your Turn

1. general background
2. prior knowledge
3. motivation or goal(s)
4. how the course will help them
5. special needs

On your worksheet,
write two short learner
personas, one each for:

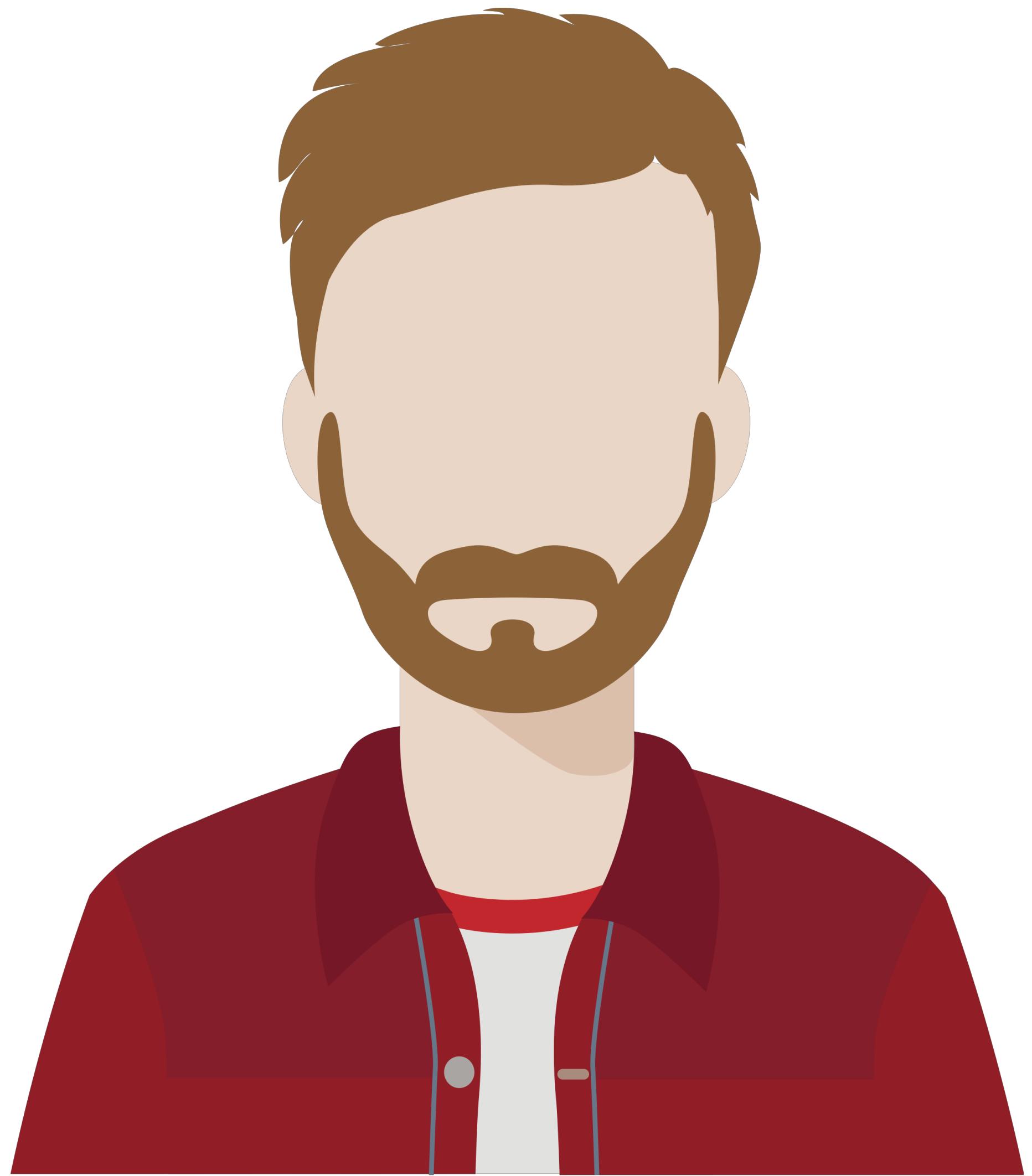
1. A tidyverse beginner
2. A student you expect
to teach



(Beginner)

- Hello World!





(Expert)

- Hi.

(A student you expect to have)



- It's me!

Quiz

Are your students attempting to become
Data Scientists or Computer Scientists?

1. Basics of RStudio
2. Data Structures
3. Subsetting
4. For Loops

5. Writing Functions
6. Writing Data
7. Data Manipulation
8. Writing Reports

Data Science or
Computer Science?

1. Visualize Data
2. Transform Data
3. Tidy Data
4. Import Data

5. Data Types
6. Iteration
7. Models
8. List Columns

Data Science or
Computer Science?

Learning objectives

(design with a goal)

Learning objective

The goal of a course or lesson stated in a way that is

1. **clear**
2. **observable**

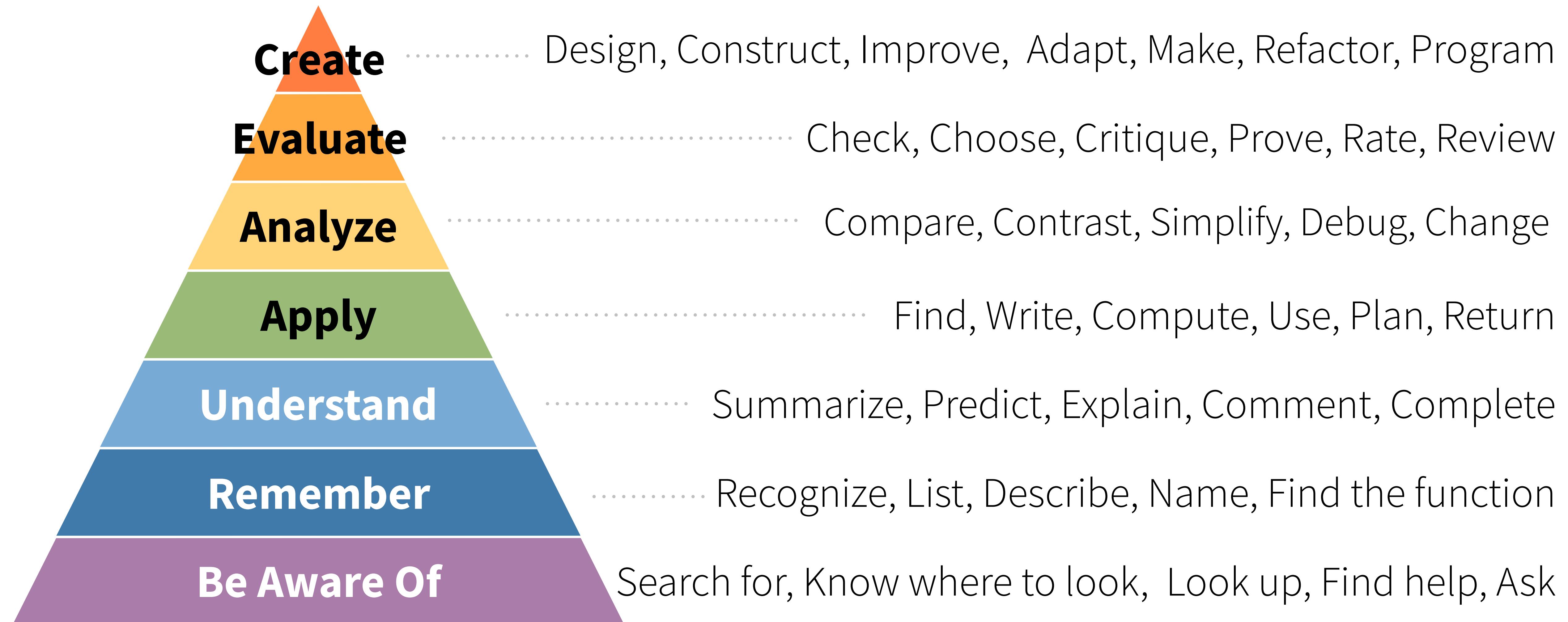
Examples

"By the end of this course learners will be able to:

1. Write and style a webpage using common CSS tags and properties.
2. Explain the role that JavaScript plays in styling web pages."

- Wilson, G. (2018). Teaching Tech Together. <http://teachtogether.tech>, 61.

Bloom's Taxonomy ++

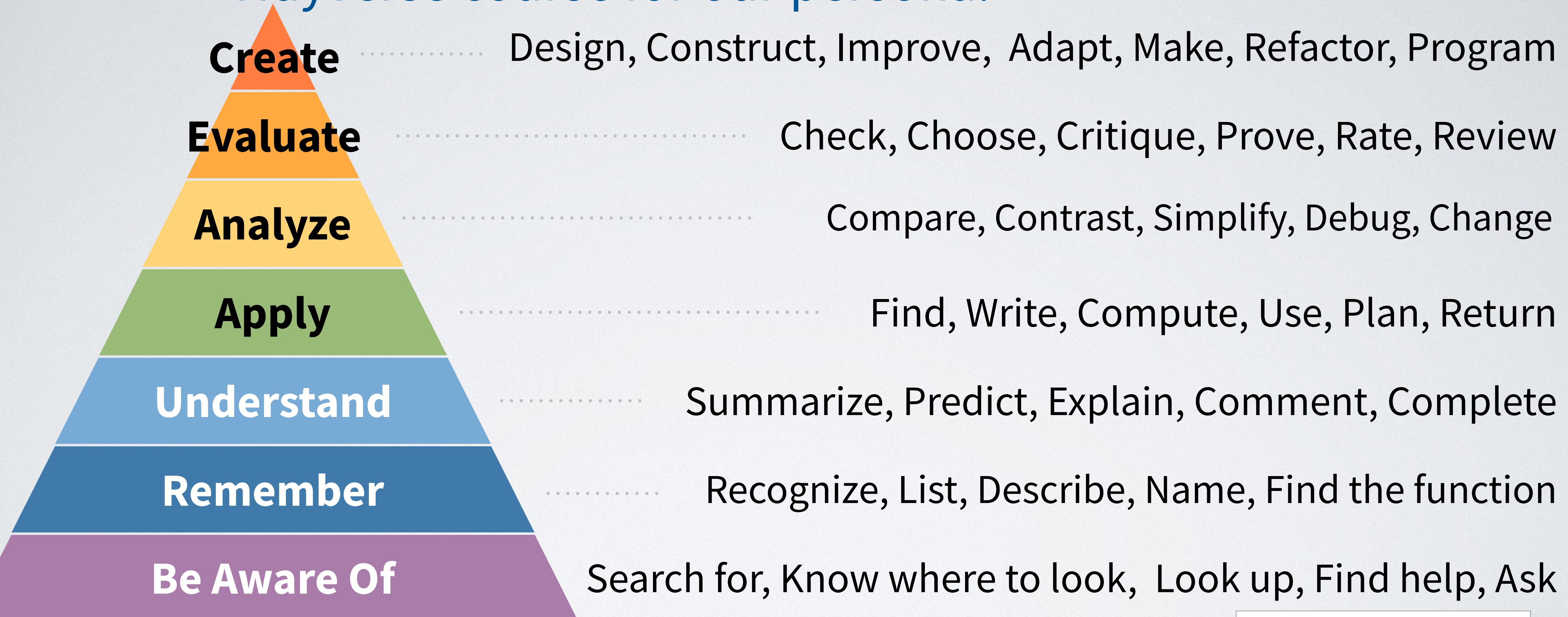


Your Turn

Write a capstone learning objective for a one day
Tidyverse course for our persona.



Write a capstone learning objective for a one day Tidyverse course for our persona.

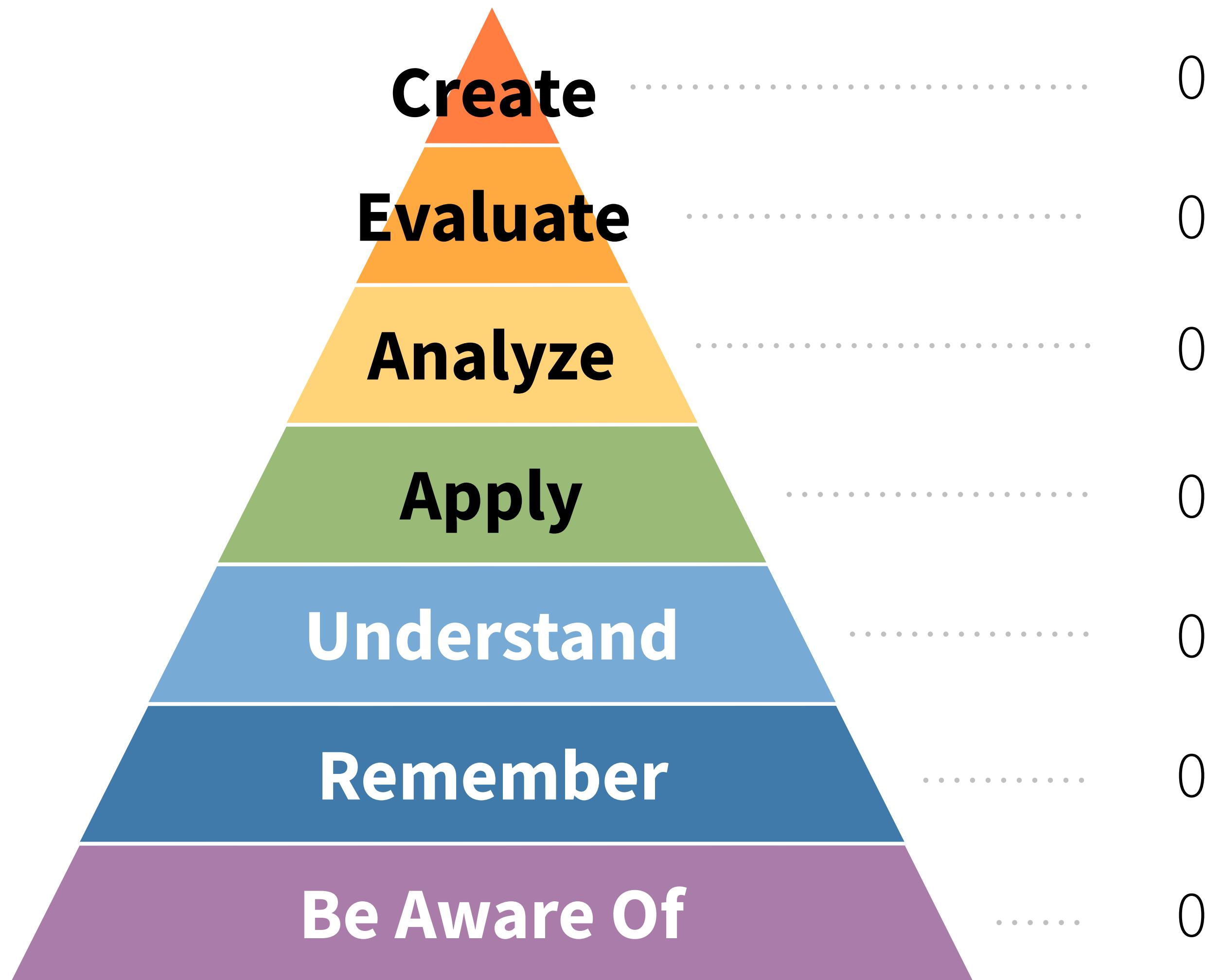


Your Turn

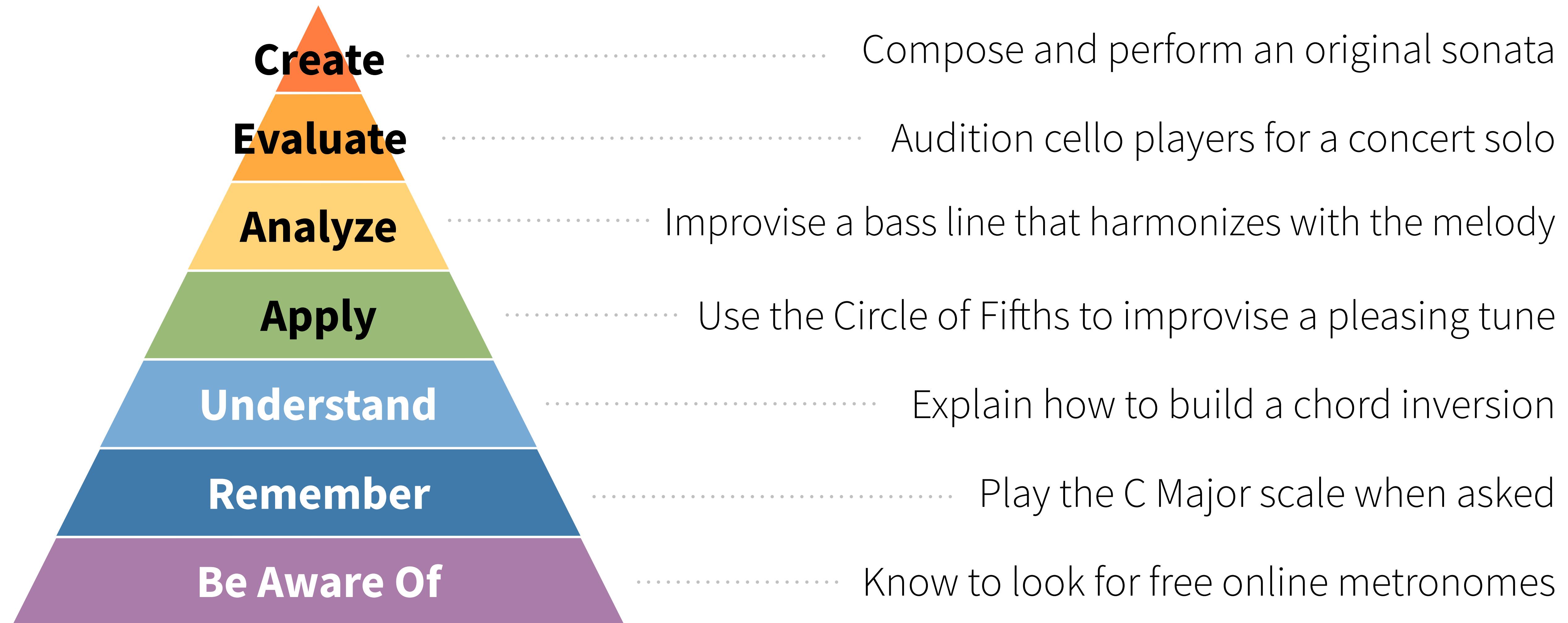
Share your objective with one person. Do you agree about which level of Bloom's Taxonomy it corresponds to?



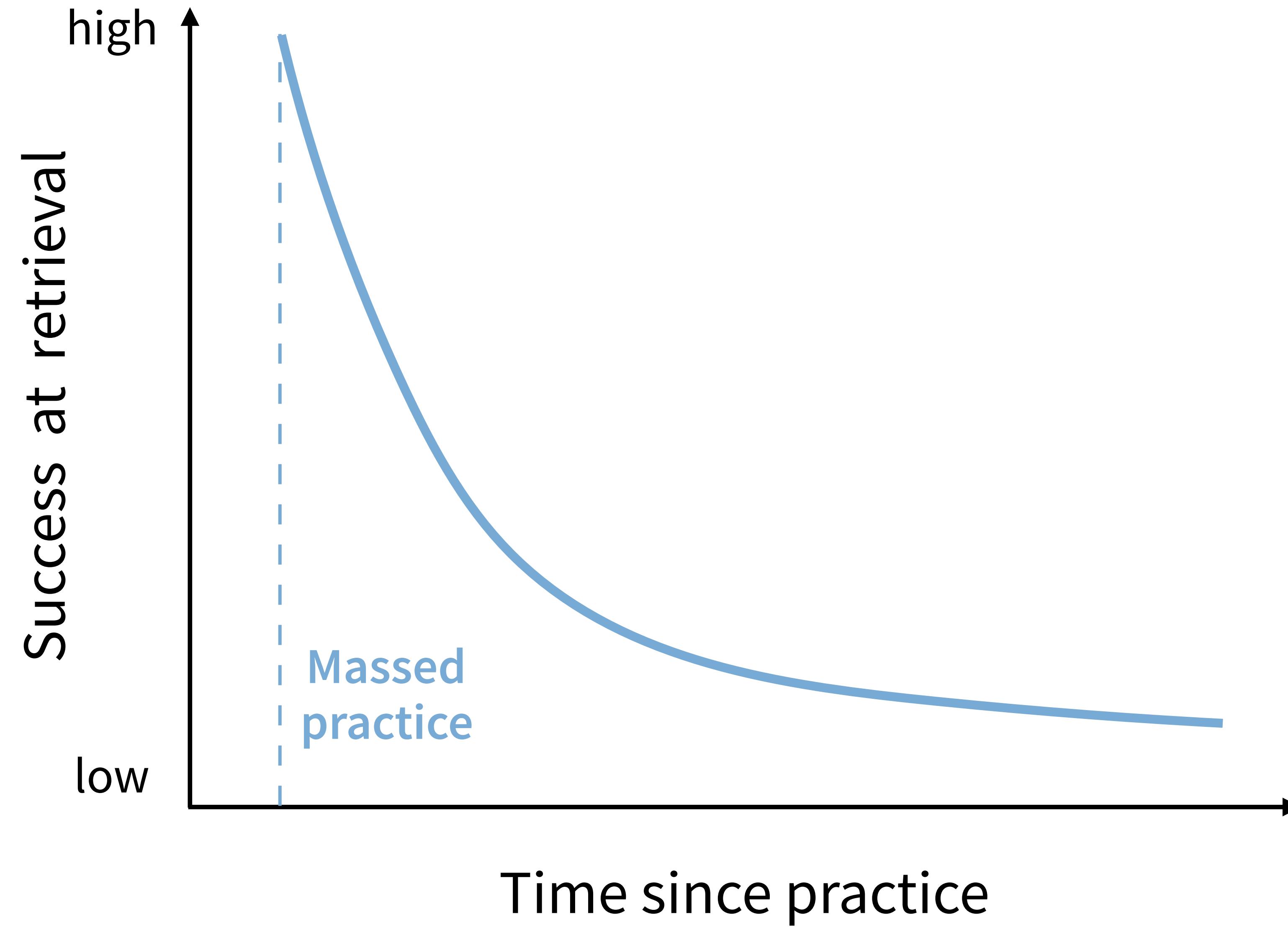
What did you choose?



Bloom's for Cello



**Something else to
consider...**



make it stick

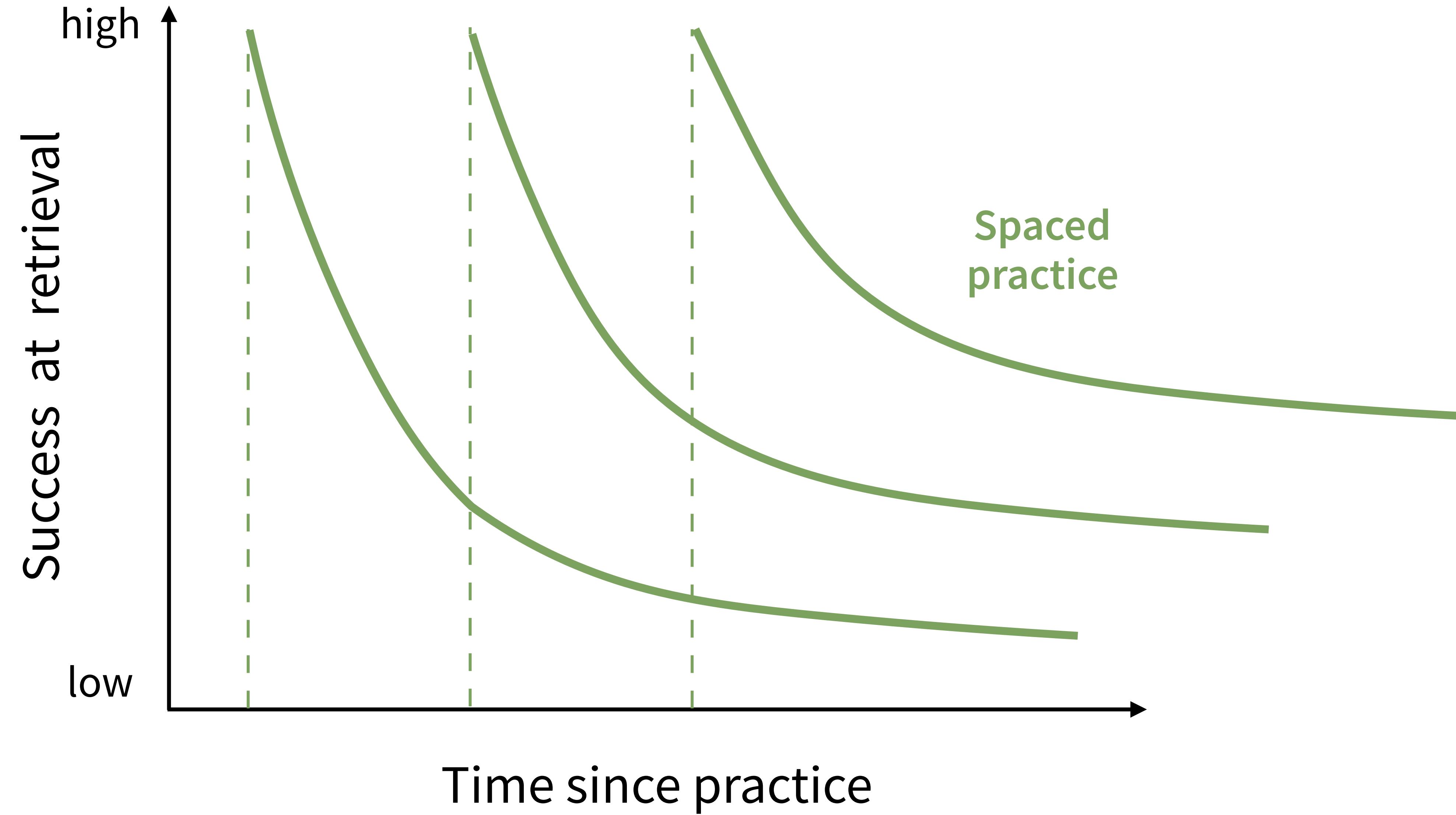


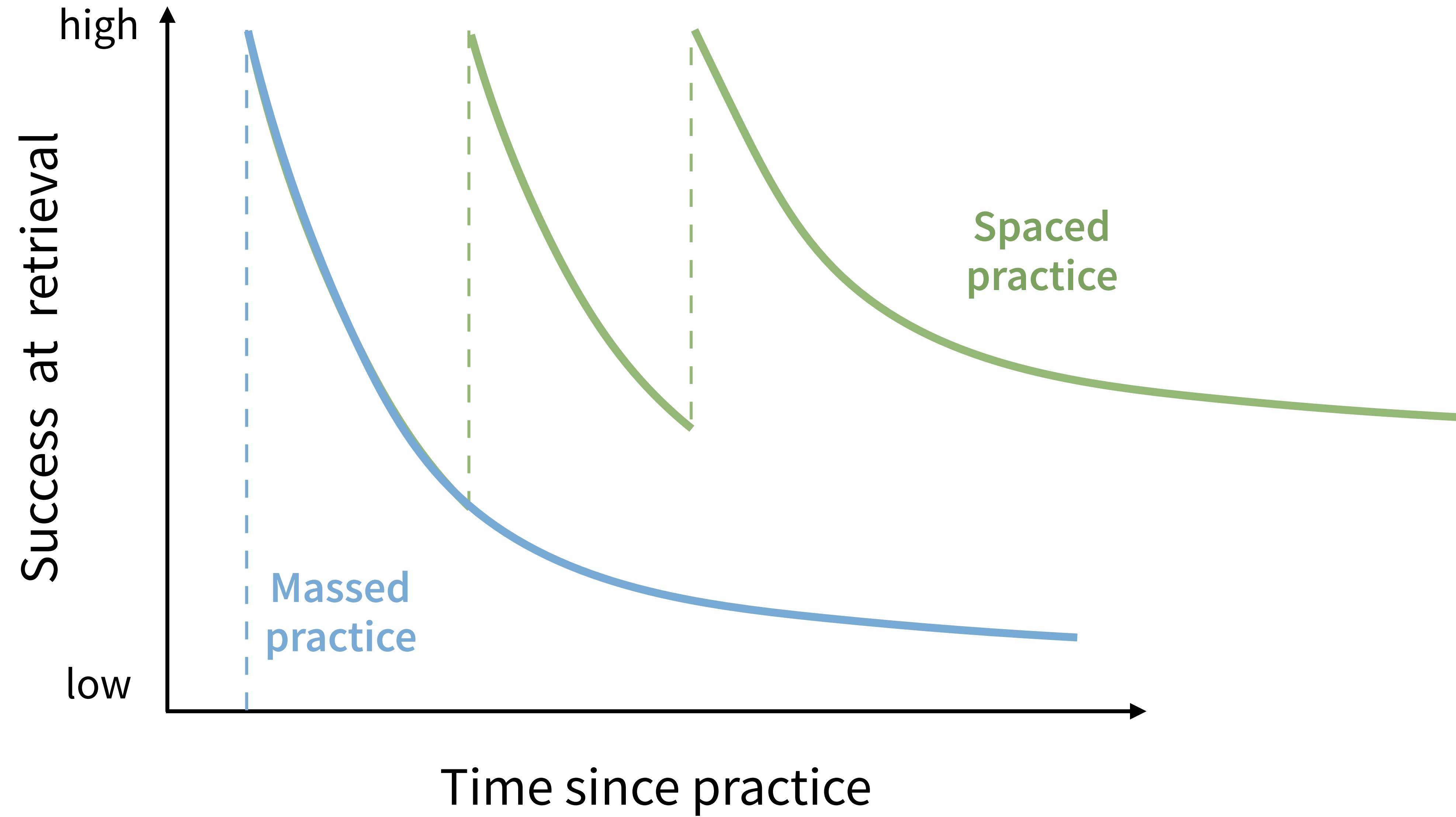
The Science of Successful Learning

Peter C. Brown

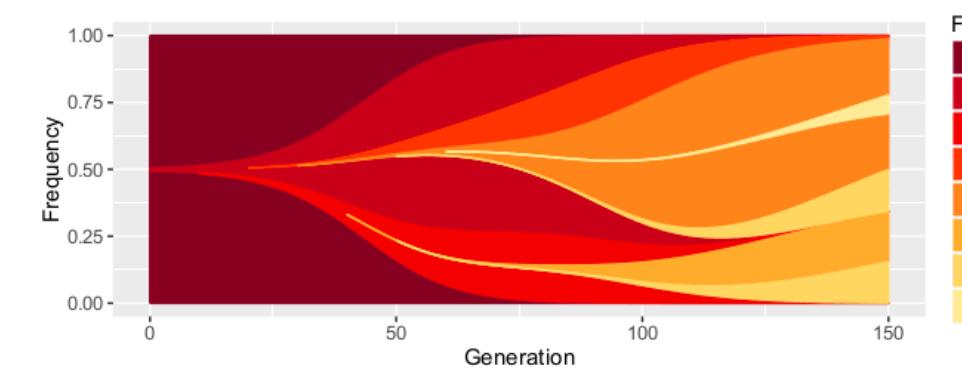
Henry L. Roediger III

Mark A. McDaniel



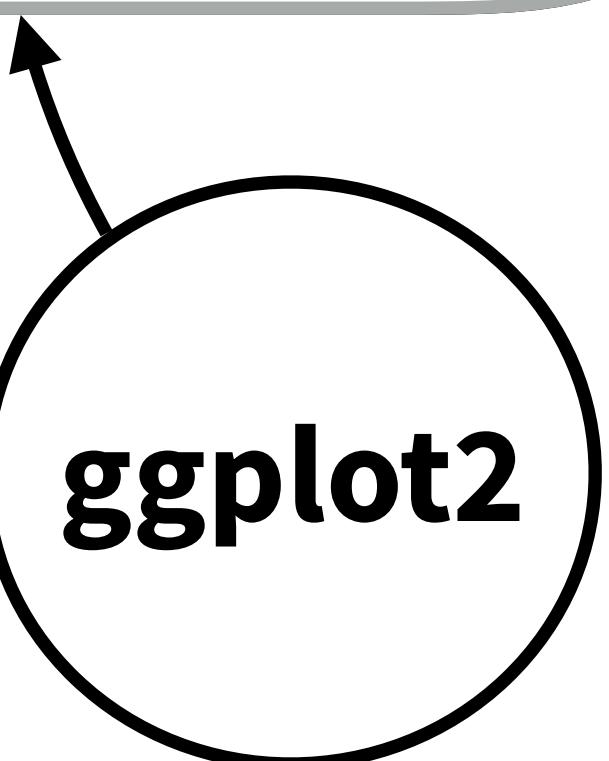
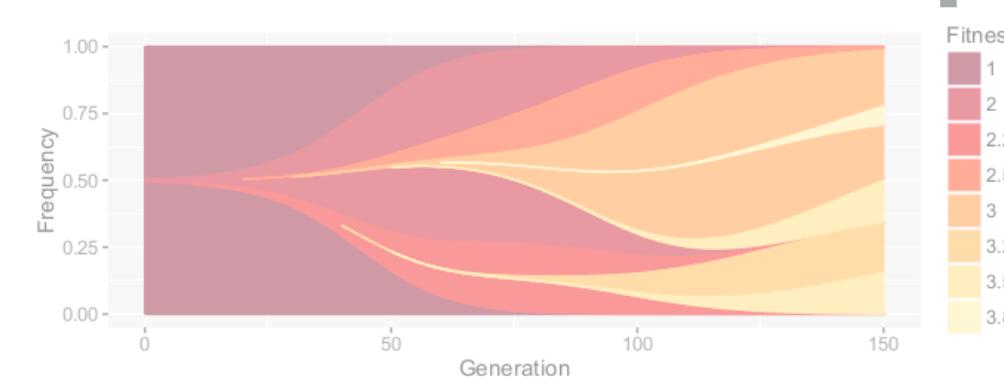


**Create an animated muller
plot with company colors**

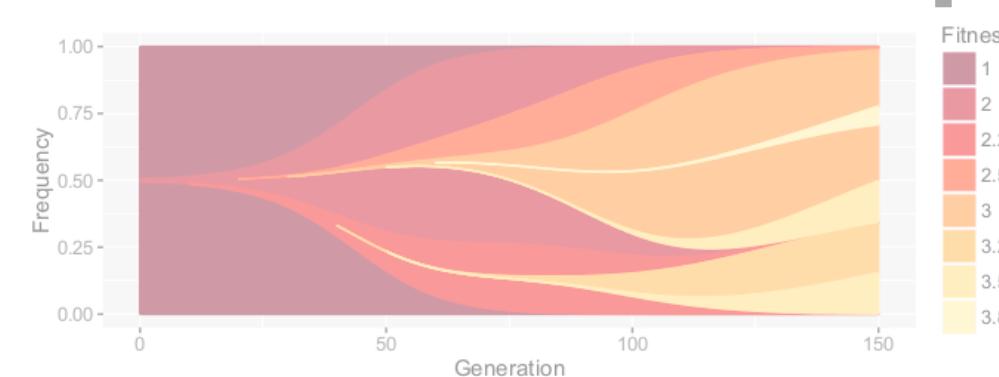


ggplot2

There's a way to **Create**
an animated muller plot



There's a way to Create
an animated muller plot



ggplot2

**Adjust
positions with
position_***()

**Change the
geom with
geom_***()

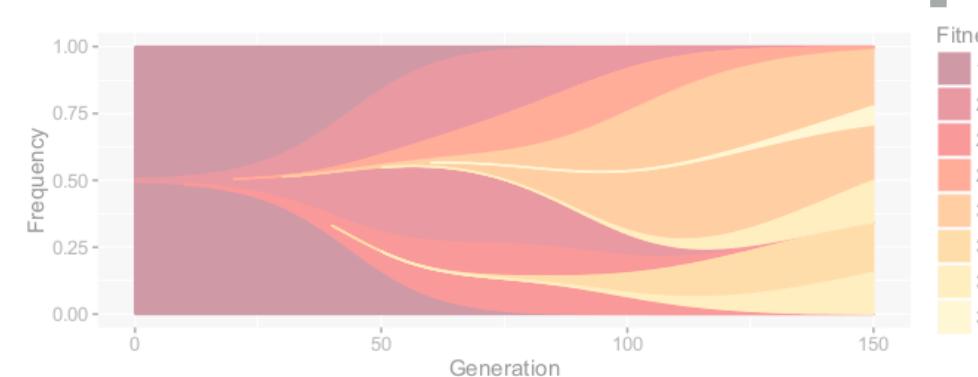
**Change
the color
with aes()**

ggplot2

**Facet with
facet_***()

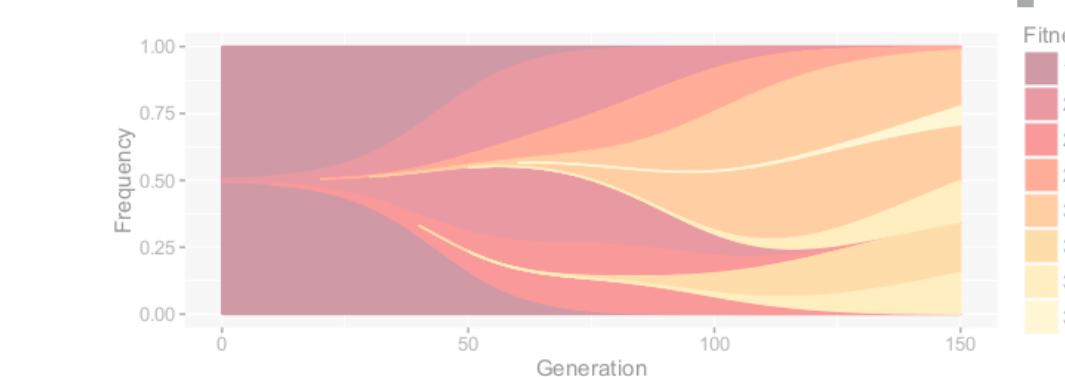
**Change
the size
with aes()**

There's a way to **Create
an animated muller plot**



ggplot2

There's a way to **Create
an animated muller plot**



There's a way to
Adjust positions

There's a way
**to Change
the geom**

There's a
way to
**Change
the color**

ggplot2

There's a
way to
**Change
the size**

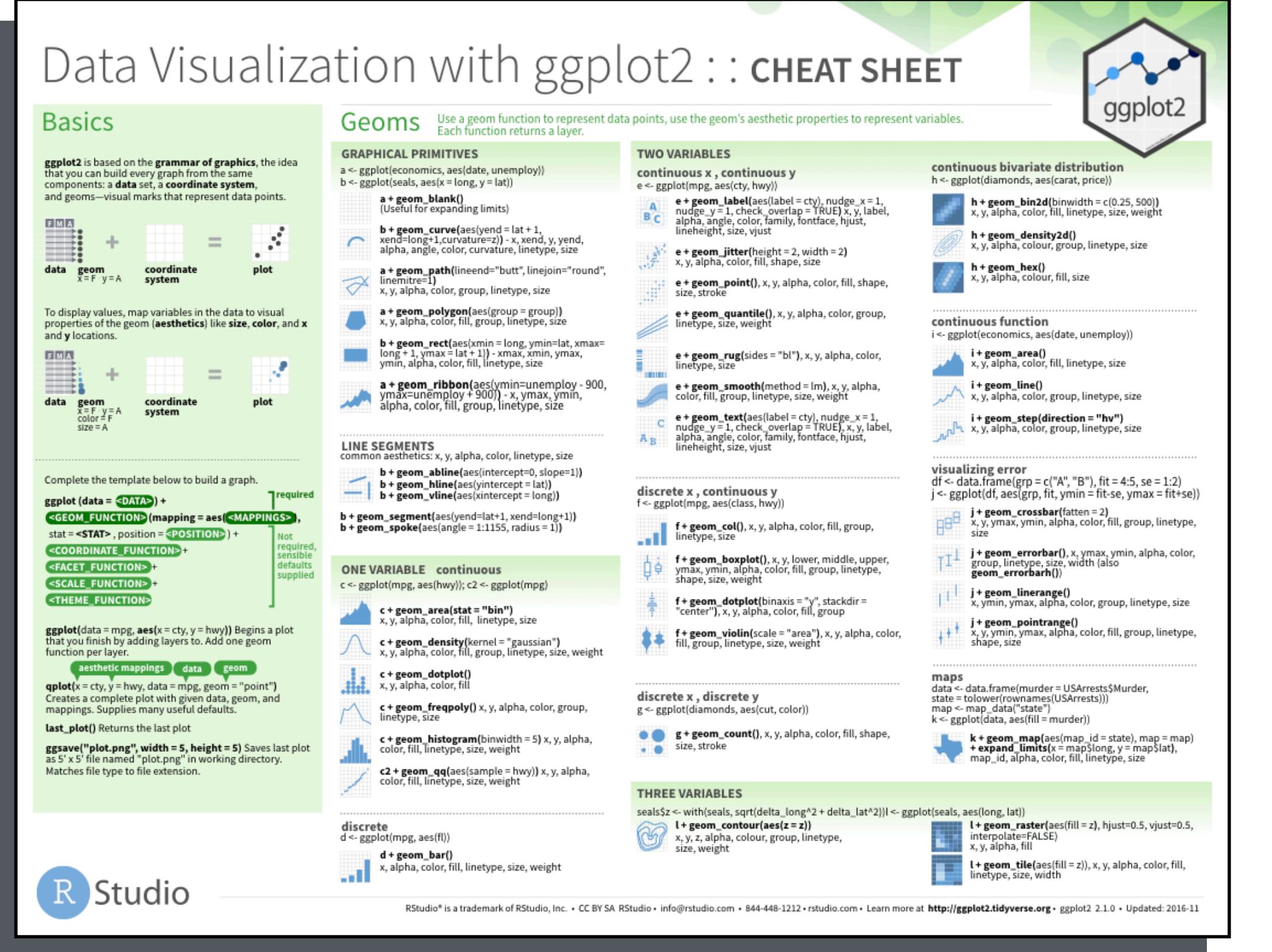
There's a
way to **Facet**

Your Turn

Discuss as a team, what factors would you use to choose between the below for your client/audience?

1. Teach a complex, realistic task
2. Teach them many basic things, maybe at a shallow level
3. Lead them through rewarding challenges to build enthusiasm for self study





There's a way to
Adjust positions

There's a way
to Change
the geom

There's a
way to
Change
the color

There's a
way to
Change
the size

ggplot2

There's a
way to
Facet

Your Turn

Briefly outline three curriculums for our **beginner**.

1. A two day workshop
2. A one day workshop
3. A half day workshop

Include in each: topics, packages (maybe functions),
topic-level learning objectives.

Think

05 : 00

Pair

03 : 00

Your Turn

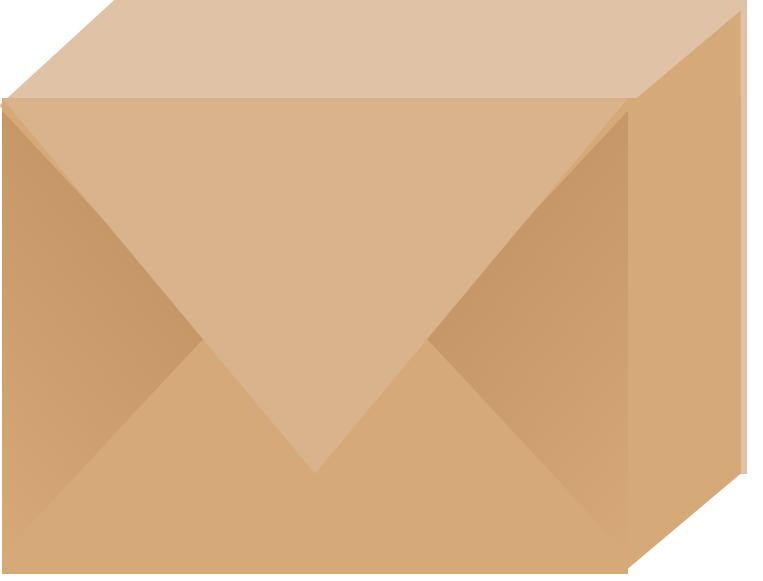
Compare your outlines to your teammates'.
Write down outlines you might use one day.

Think

05 : 00

Pair

03 : 00



ggplot2

dplyr

tidyr

readr

purrr

tibble

stringr

forcats

readr

readxl

haven

jsonlite

xml2

httr

rvest

DBI

lubridate

hms

magrittr

glue

broom

shiny

rmarkdown

Your Turn

Divvy these packages up between your teammates.
One person per package.

1. ?

2. ?

3. ?

