The teachR's : : CHEAT SHEET

Getting ready to teach some R? Use our cheat sheet to **prepare**, **teach** and **debrief**

DRAFT v0.1

Before the course (design)

Use these to prepare your lecture/course:

Who are your learners? (Persona Analysis)
(change according to requirements…[1])

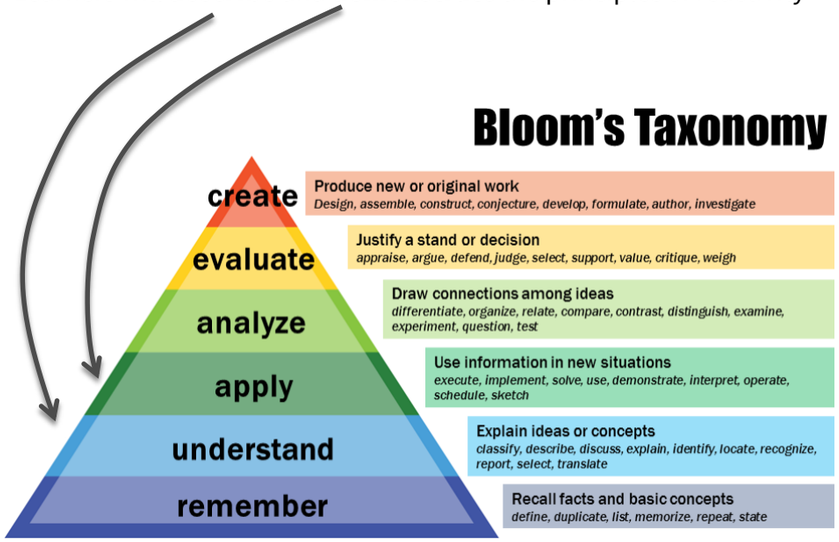
The R novice
Background: some statistics, some programming
Prior knowledge: basic R course, base R syntax
Goals: understand tidy concepts,
expose to tidyverse practices
Special needs: First successes, mitigate fears, encourage learning

The R "false expert"
Background: working with R for some time, but doesn't keep-up
Prior knowledge: been using base R syntax, loops, and functions
Goals: strengthen tidyverse familiarity, apply dplyr workflow
Special needs: switch from obsolete methods to state-of-the-art R

Define goals using Bloom's Taxonomy [2]

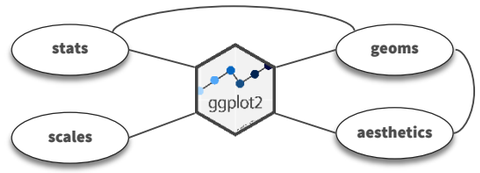
Design your classes to move your learners "up the pyramid"
Keep "realistic goals" for each persona

For example (R shiny – novice):
Learners will **describe** and **demonstrate** the principles of reactivity



Design your lecture using Conceptual maps

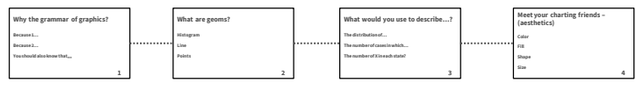
Keep the number of elements small (up to ~7 items), e.g.:



Write the "final exam"

How are you going to test knowledge after the lecture?
What should learners be able to answer?

Turn the concepts into slides



Add faded examples (exercises) and check-in slides

Check-ins, e.g.: multiple choice quick questions"
Faded examples = fill in the blanks, e.g.:

```
ggplot(data = ___, mapping = aes(x = ___, y = ___)) +
  geom_*() +
```

During the course (implement)

Things you can implement to improve the lecture workflow

Learners use **sticky notes** to indicate status:
Green = everything is OK/Exercise completed.
Red = help me! I ran into a problem.
Blue = I need a break.

Engage with online mini-polls during lecture
Use regular check-ins during your lecture (3-4 check-ins per hour). No one "opts-out" (everyone answers once in a while – you choose)

After the course (learn/improve)

Make sure you make the most to improve your next lecture

Use feedback to understand what went good, and what you need to improve.

Measure the time each lecture takes you (or where did you get too), so that next time your time estimates will be better

Useful tips and tricks

Useful tips for preparations

Use github to upload course materials

RMarkdown for exercises

Recommended reading materials/references for R courses:

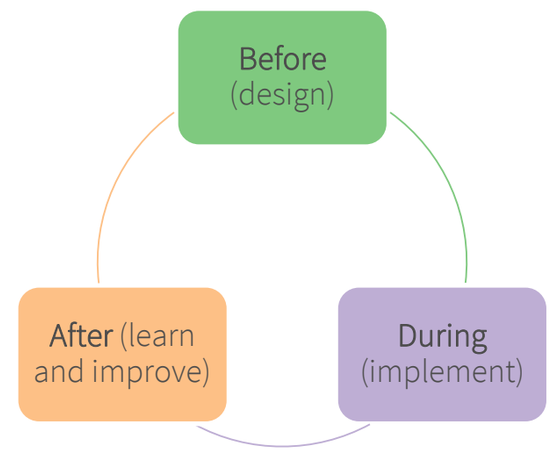
R for Data Science / Garrett Grolemund and Hadley Wickham (r4ds.had.co.nz)

Advanced R/ Hadley Wickham (adv-r.had.co.nz)

RStudio **Cheat sheets**:

https://www.rstudio.com/resources/cheatsheets/

Iterative work flow



Additional sources

[1] Dreyfus, Stuart E., and Hubert L. Dreyfus. *A five stage model of the mental activities involved in directed skill acquisition.* No. ORC-80-2. California Univ Berkeley Operations Research Center, 1980.

[2] Content downloaded from https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/ (CC-BY-SA Vanderbilt University Center for Teaching)

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