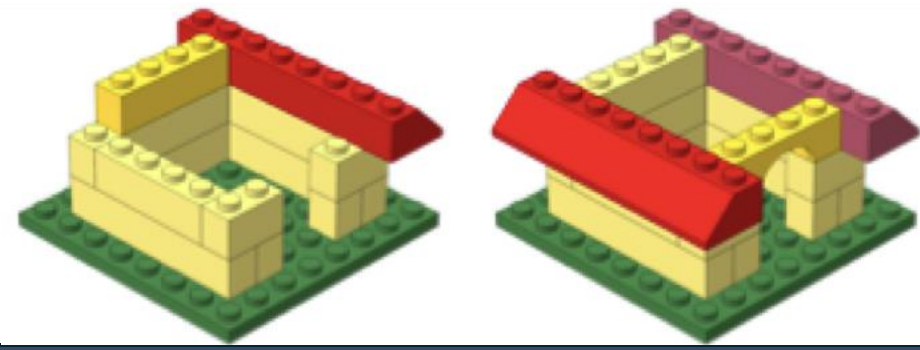# Workshop Scope
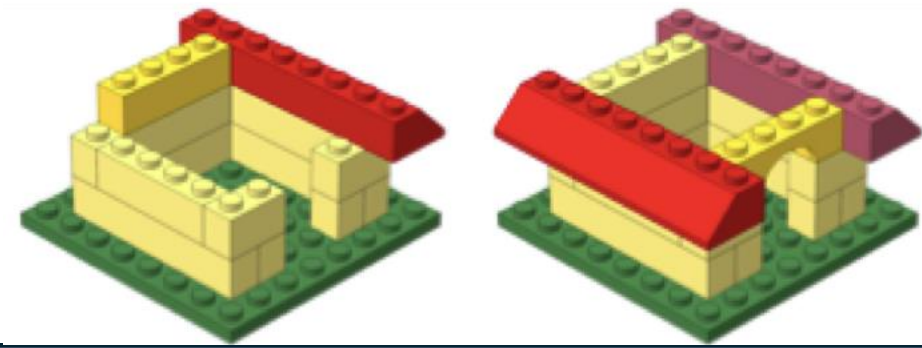
❖ Describe best practices for designing a single-cell RNA-seq experiment

❖ Describe steps in a single-cell RNA-seq analysis workflow

❖ Use Seurat and associated tools to perform analysis of single-cell expression data, including data filtering, QC, integration, clustering, and marker identification

❖ Understand practical considerations for performing scRNA-seq, rather than in-depth exploration of algorithm theory

Exit survey

https://tinyurl.com/scRNAseq-online

Useful resources

❖ **Computational packages for single-cell analysis:**

 ❖ http://bioconductor.org/packages/devel/workflows/html/simpleSingleCell.html

 ❖ https://satijalab.org/Seurat/

 ❖ https://scanpy.readthedocs.io/

 ❖ https://github.com/seandavi/awesome-single-cell

❖ **Online courses:**

 ❖ https://hemberg-lab.github.io/scRNA.seq.course/

 ❖ https://github.com/SingleCellTranscriptomics

❖ **Resources for scRNA-seq Sample Prep:**

 ❖ https://www.protocols.io/

 ❖ https://support.10xgenomics.com/single-cell-gene-expression/sample-prep

 ❖ https://community.10xgenomics.com/

Research Data Management (RDM)

BIOMEDICAL RESEARCH DATA LIFECYCLE
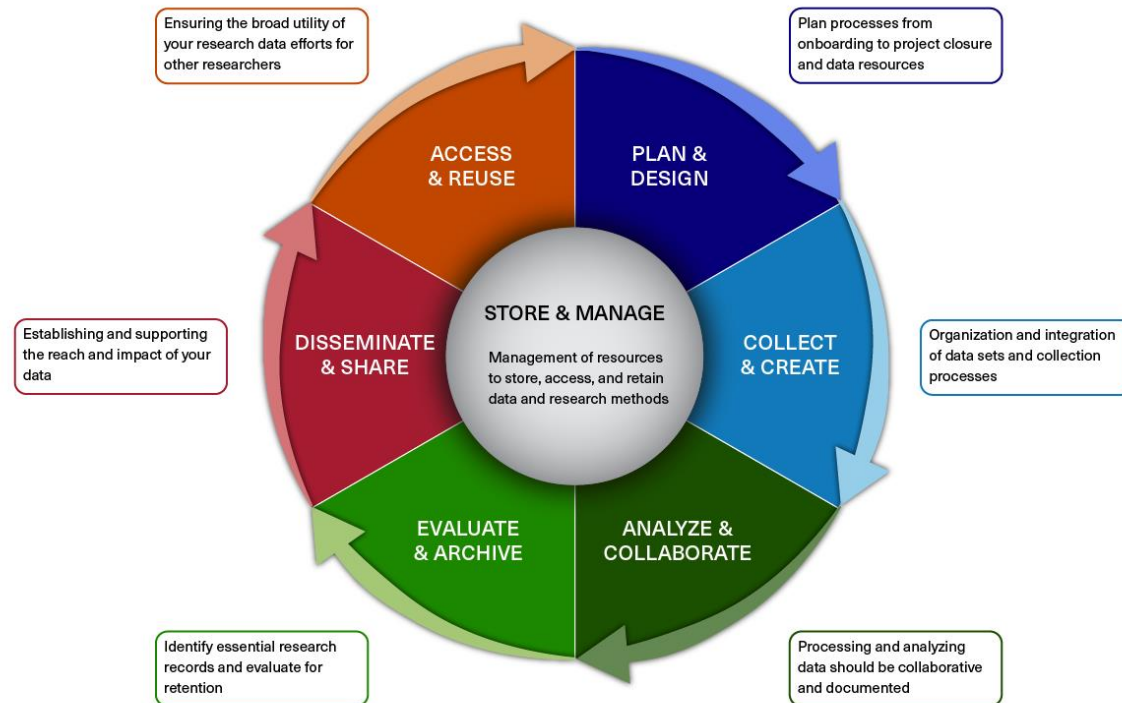
Better RDM practice benefits you

- ❖ **HMS Data Management LMA**

  - ❖ **Webpage:** https://datamanagement.hms.harvard.edu

  - ❖ <u>Sign up</u> for quarterly email updates

- ❖ **Harvard-wide Research data Management**

  - ❖ https://researchdatamanagement.harvard.edu/

OCTOBER 2024

Date	Time	Event	Location
☐ Oct 23	1pm	**HBC: Introduction to scRNA-seq and data pre-processing**	Zoom
☐ Oct 24	10am	**Data Management: Computing Strategies and Resources**	Zoom
☐ Oct 31	10am	**HMS RC: O2 Portal - Simplifying the Interaction and Experience of Using an HPC Environment**	Zoom
☐ Oct 31	12pm	**Data Horror Stories: Avoid the Nightmare**	Countway Library Classroom 102 & 103

NOVEMBER 2024

| Date	Time	Event	Location
☐ Nov 1	10:30am	**HKS Data + Donuts: Teddy Svoronos on the Science & Implications of Generative AI**	Hybrid
☐ Nov 6	12pm	**Data Discussions: Let's Name Your Data**	Zoom

https://datamanagement.hms.harvard.edu/about/news-events/rdmwg-calendar

Keep building!
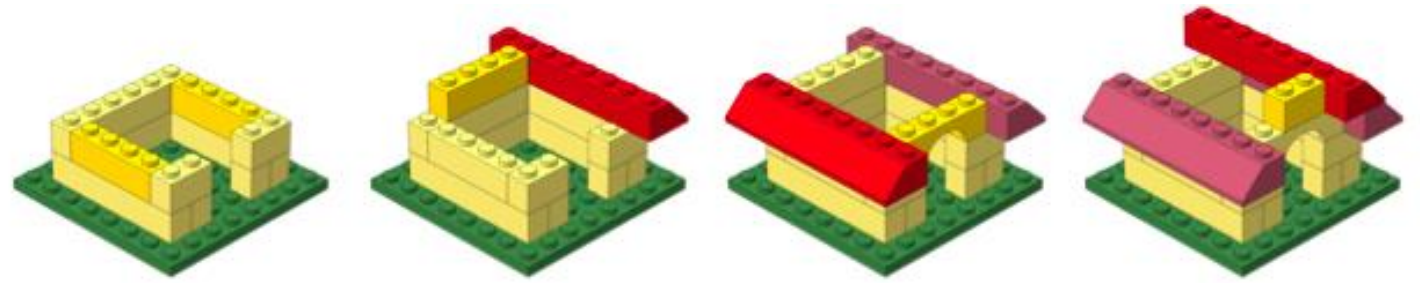
2024 schedule:

Topic	Pre-requisites	Date/Time	Time	Registration
Introduction to scRNA-seq and data pre-processing	R basics and Shell	10/23/24*	1 – 3pm	Register!
Basic Shell	None	11/20/24	1 – 4pm	Register!
Tips and Tricks on O2	Shell	12/11/24*	1 – 4pm	Register!

*The October and December Workshops will meet on the 4th and 2nd Wednesdays of the month, respectively. (Instead of the typical 3rd Weds.)

https://bioinformatics.sph.harvard.edu/current-bioinformatics-topics-workshops

Keep building!
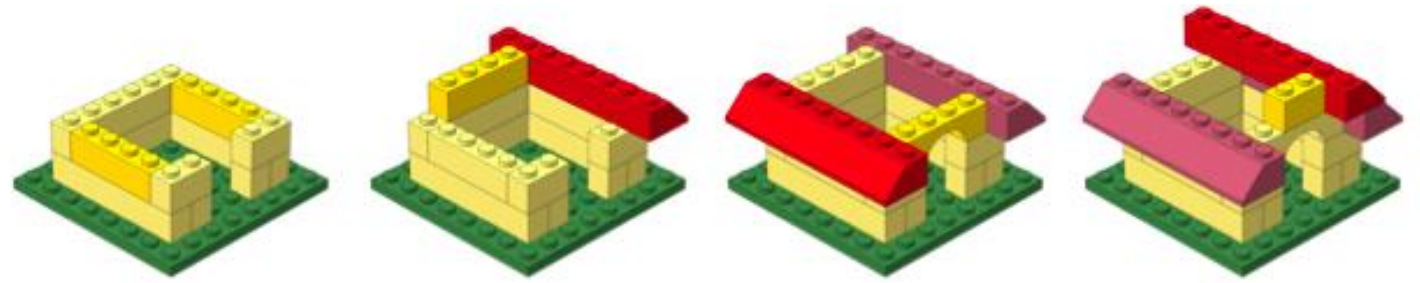
Topic	Category	Date	Duration	Prerequisites
Introduction to R	Basic	October 8, 11, 15, 18	Four 2h sessions	None
Introduction to SingleCell RNA-seq	Advanced	October 25, 29, November 1	Three 2.5h sessions	R
Pseudobulk	Advanced	November 12, 15, 19	Three 2.5h sessions	R
Peak analysis	Advanced	December 3, 6, 10	Three 2.5h sessions	R

https://bioinformatics.sph.harvard.edu/upcoming-workshops

Talk to us early!

Involvement in study design to optimize experiments

Thanks!

❖ **Dr. Arpita Kulkarni** – Associate Director, HMS Single Cell Core

More Information

❖ *HBC training materials: https://hbctraining.github.io/main*

❖ *HBC website: http://bioinformatics.sph.harvard.edu*

Contact Us

Sign up for our mailing list:

https://tinyurl.com/hbc-training-mailing-list

❖ *HBC training team:* hbctraining@hsph.harvard.edu

❖ *HBC consulting:* bioinformatics@hsph.harvard.edu