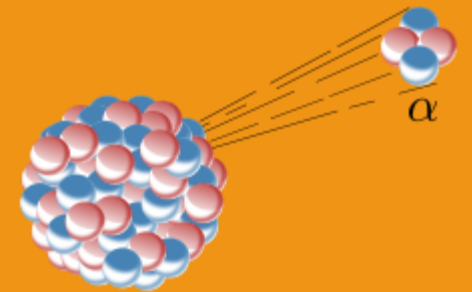


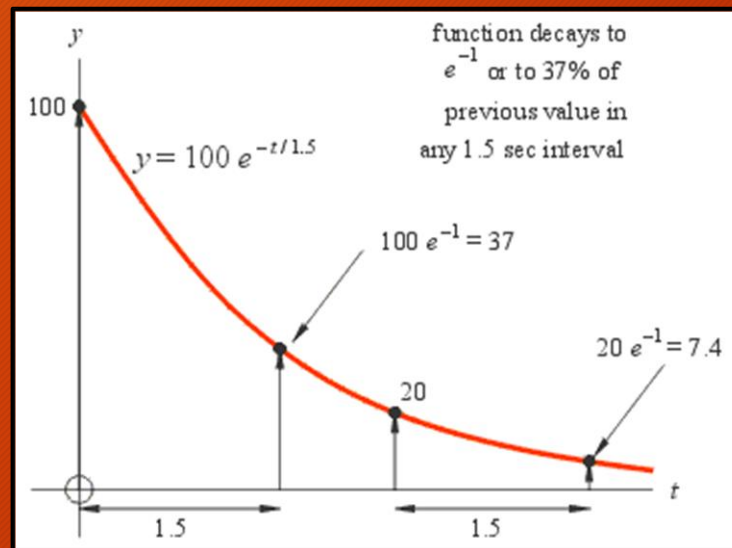
# Radioactive Decay

Jayson Pritchard and Ryan Case

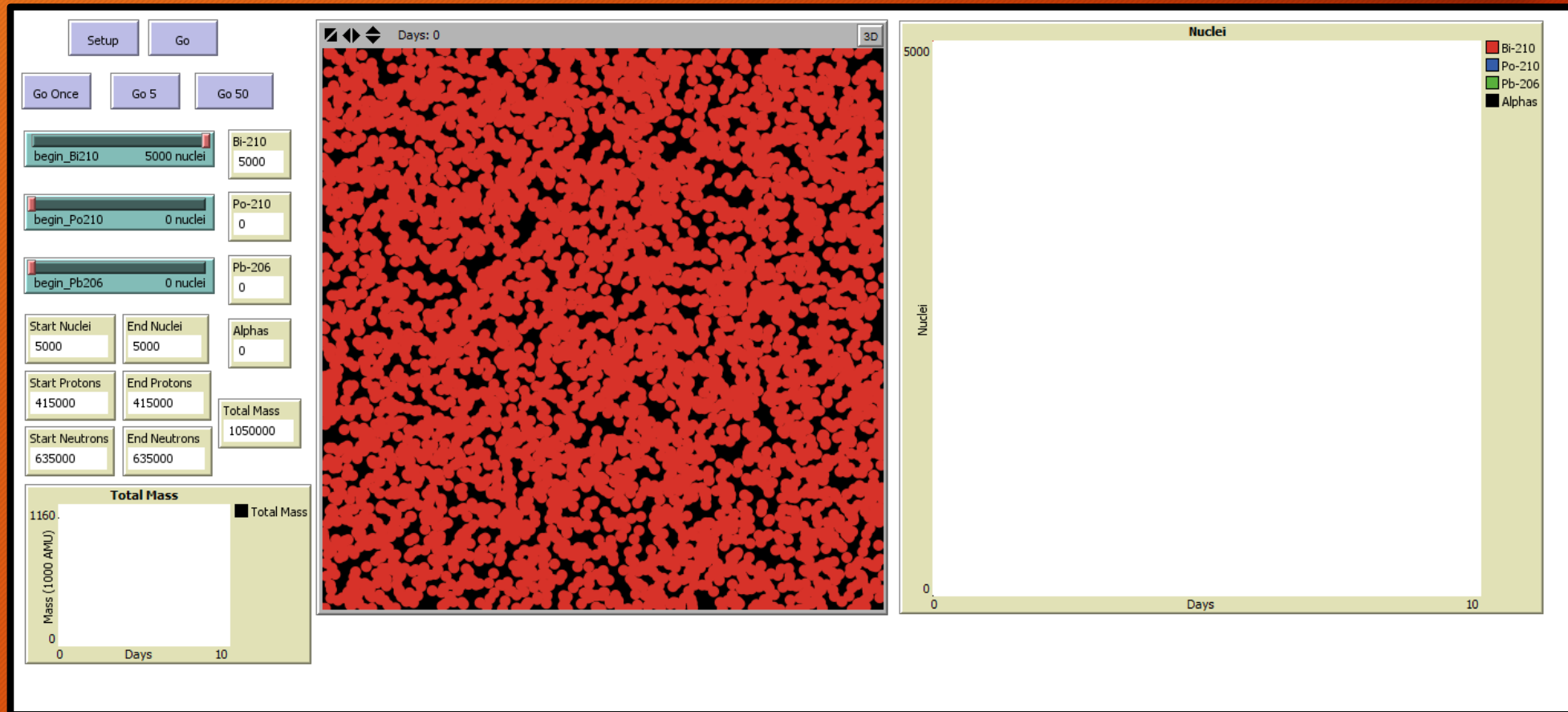


# Why This Model?

- The atom and nuclear decay are apart of both Physics and Chemistry content
- Models in classrooms are modelling geometric decay, but not modelling nuclear decay



# Model Layout



# Summary of the Content Standards

- M2.1 Use deductive reasoning to construct and evaluate conjectures and arguments, recognizing that patterns and relationships in mathematics assist them in arriving at these conjectures and arguments.
- S1.1 Elaborate on basic scientific and personal explanations of natural phenomena, and develop extended visual models and mathematical formulations to represent thinking.
- S3.1 Use various means of representing and organizing observations (e.g., diagrams, tables, charts, graphs, equations, and matrices) and insightfully interpret the organized data.
- 2.2 Collect information about the behavior of a system and use modeling tools to represent the operation of the system.
- Major Understandings: 4.4a Each radioactive isotope has a specific mode and rate of decay (half-life).
- 5.3f Among other things, mass-energy and charge are conserved at all levels (from sub-nuclear to cosmic).
- 5.3g The Standard Model of Particle Physics has evolved from previous attempts to explain the nature of the atom and states that

# Activity

- Run default setup
- Manipulate model on their own
- Decay Po-210 to Pb-206
- Decay Bi-210 to Pb-206
- Answer questions

1. To begin, first click [Setup] then click [Go]

2. What do you notice about the total mass?

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3. What do you notice about the three curves on the graph on the right?

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4. What do you notice is changing within the world?

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Try changing the starting nuclei and see what happens

# Take-Aways

- Why we couldn't do the entire decay chain
- How you could expand on this activity

