

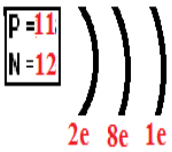
- Go to: <http://phet.colorado.edu/en/simulation/build-an-atom>
 - Click “run now” or “run in html5”
 - If prompted, say later for the update
- 5. Build the *two stable isotopes of a neutral atom of Nitrogen*, then draw pictures of both of them with the numbers of protons, neutrons and electrons labeled in the picture.

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6. Under each picture write down the *isotopic name and symbol* for each isotope.
7. After building these isotopes, what seems to determine whether an isotope is stable or not?
8. After building these isotopes, what makes something an ion compared to a neutral atom?
9. *Using the two Nitrogen Isotopes above*, describe the *meaning of isotopes* while using and teaching the following terms: *Atomic Mass, Atomic Number, and Mass Number*.

- Go to: <http://www.pcs.k12.va.us/tms/periodictable/index.htm>

10. Copy the images of Na, Mg, Al, Si P, S, CL, Ar below in small size. Below each ring model, list the protons, neutrons, electrons, period # and Group #

 <p>P=11 N=12</p> <p>2e 8e 1e</p> <p>P=11 E=11 N=12 Period 3 Group 1</p>	<p>P= E= N= Period= Group=</p>	<p>P= E= N= Period= Group=</p>	<p>P= E= N= Period= Group=</p>	<p>P= E= N= Period= Group=</p>	<p>P= E= N= Period= Group=</p>	<p>P= E= N= Period= Group=</p>	<p>P= E= N= Period= Group=</p>
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11. Which number below your picture always matches the number of rings in the picture?

12. Which two numbers are always the same under each picture?

13. How would you find the mass number of each isotope drawn above?

- Go to: <http://www.youtube.com/watch?v=uKqvjEE0wFg>

14. Watch the video with sound. Explain how stars make elements.

15. What is the final element they make, and what happens when too much of this element has been produced?

- Go to: <http://www.youtube.com/watch?v=nhhdkYFmd7A>

16. Where does the story start?

17. What are the two main elements in the universe, and when where they created?

18. How are stars powered?

19. What happens in massive stars that is special?

20. Explain what happens when the core of the sun becomes Iron.

21. When do the heavier elements finally form? Give a few examples.

22. Review:

- When are Hydrogen and Helium Form?
- When do the elements from Carbon up to Iron form?
- When do the heavier elements form?

23. How do these elements get spread out through the universe?

- Go to: <http://www.discovery.com/tv-shows/other-shows/videos/assignment-discovery-shorts-periodic-table-and-isotopes/>

24. Why is the atomic mass for radioactive elements in brackets?

25. What is an isotope?

26. How many isotopes of carbon are there?

27. What is the most common isotope of carbon?