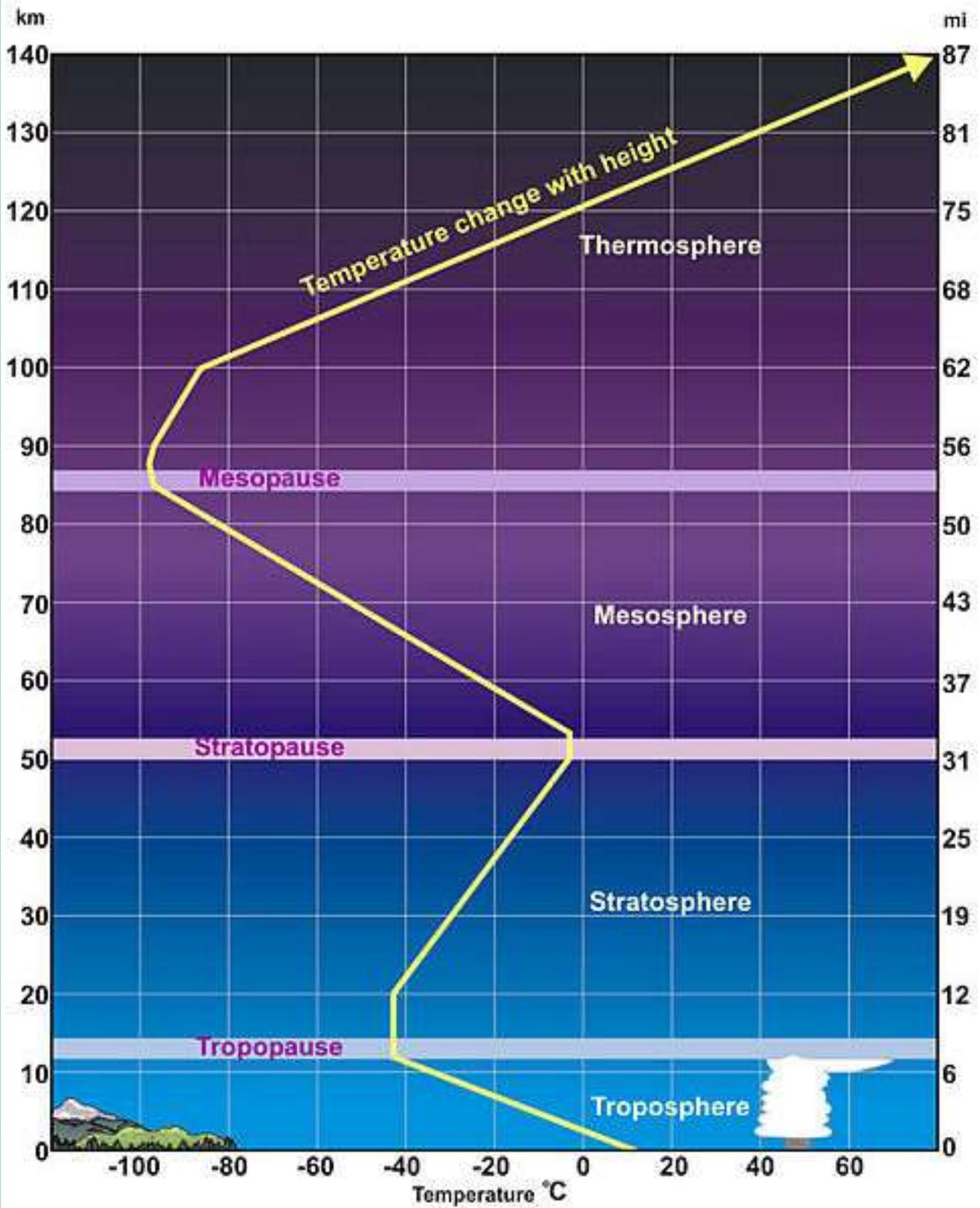


# Temperature in Atmospheric Layers



# Atmosphere Molecule-Density Model

The next time you empty the punched out circles from your hole punch, save the paper circles for this activity. The punched circles will become gas molecules. (Students will need three colors of punched circles to represent nitrogen, oxygen, and other gases.)

Instructions:

- 1) Print the organizer onto colored paper.
- 2) You will need to trim the edges for the page to fit into the students' interactive notebooks.
- 3) Students will label the layers of the atmosphere: troposphere, stratosphere, mesosphere and thermosphere and the borders: tropopause, stratopause, and mesopause.
- 4) Students will glue the punched circles onto the page to represent molecules in the atmosphere. Here is the proportion:

Molecules needed for each layer:

**These numbers represent the proportion if the layers were equal in size:**

**Troposphere**

19 nitrogen  
5 oxygen  
1 other gases

**Stratosphere**

11 nitrogen  
3 oxygen  
1 other gases

**Mesosphere**

6 nitrogen  
1 oxygen  
0 other gases

**Thermosphere**

2 nitrogen  
0 oxygen  
0 other gases

**For a total of:**

38 nitrogen  
9 oxygen  
2 other gases

**These numbers take into consideration that the atmospheric layers are not equal in depth:**

**Troposphere**

19 nitrogen  
5 oxygen  
1 other gases

**Stratosphere**

22 nitrogen  
6 oxygen  
1 other gases

**Mesosphere**

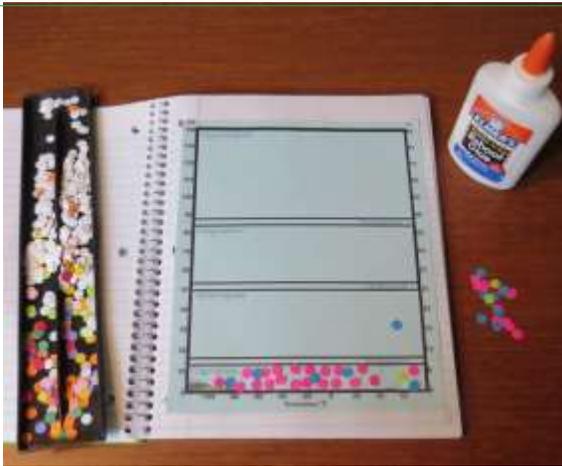
12 nitrogen  
2 oxygen  
0 other gases

**Thermosphere**

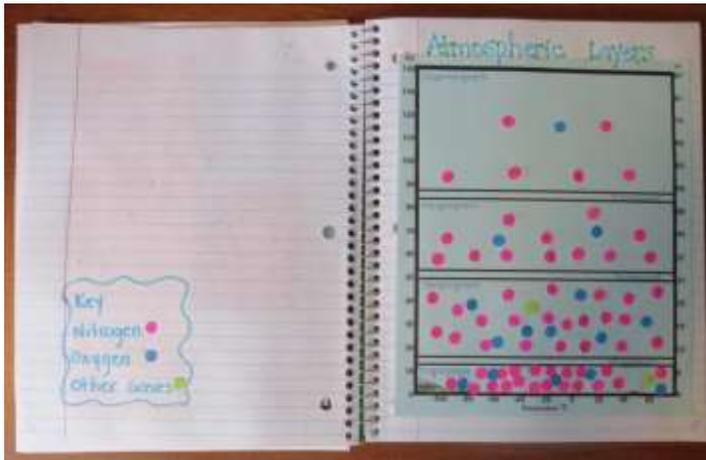
6 nitrogen  
1 oxygen  
0 other gases

**For a total of:**

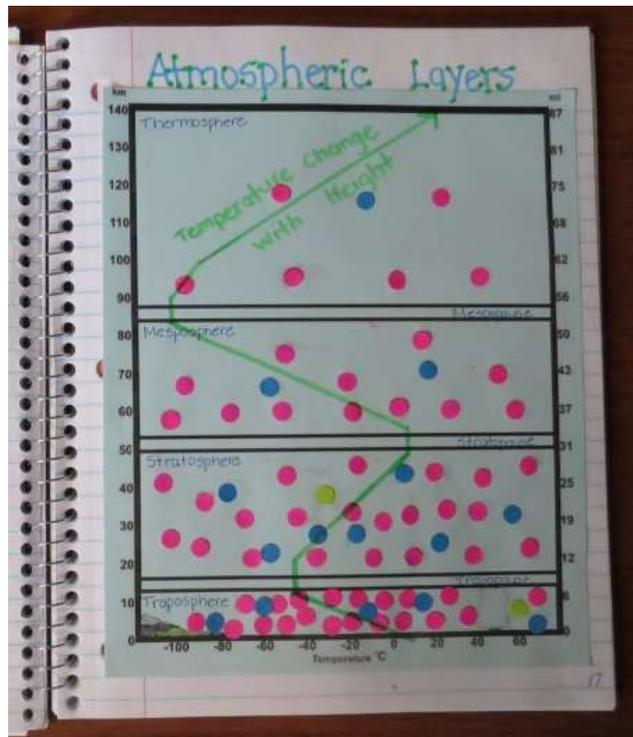
59 nitrogen  
14 oxygen  
2 other gases



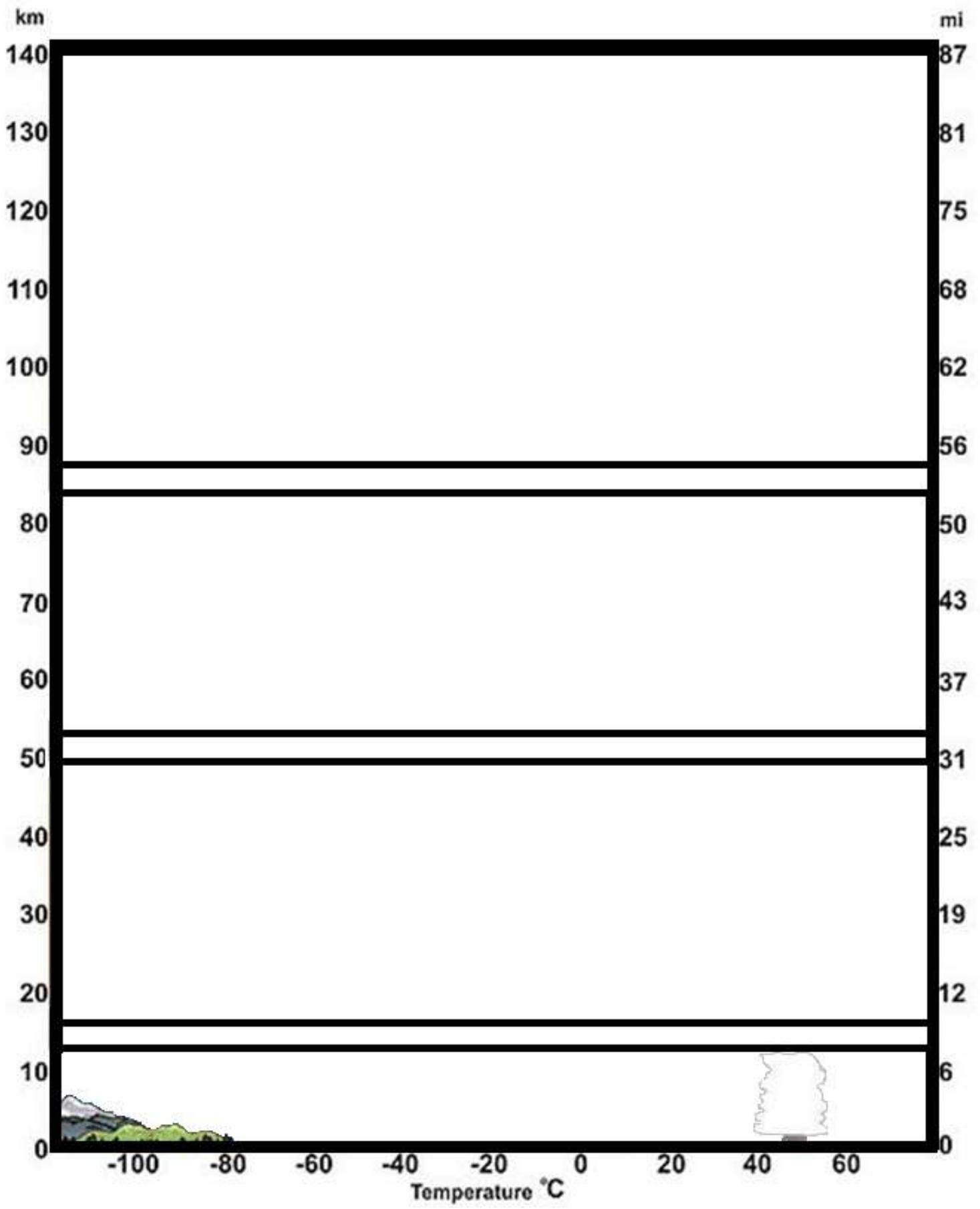
It doesn't matter which color students select for nitrogen, oxygen, or other gases.



- 5) Students will need to create a key to show what each colored dot represents.



- 6) Have students draw a line to show temperature ranges in the atmosphere. [Refer to the information mini poster for where the line should be drawn.]



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## Atmospheric Layers Image

[http://commons.wikimedia.org/wiki/Category:Earth%27s\\_atmosphere\\_diagrams#mediaviewer/File:Atmprofile.jpg](http://commons.wikimedia.org/wiki/Category:Earth%27s_atmosphere_diagrams#mediaviewer/File:Atmprofile.jpg)

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