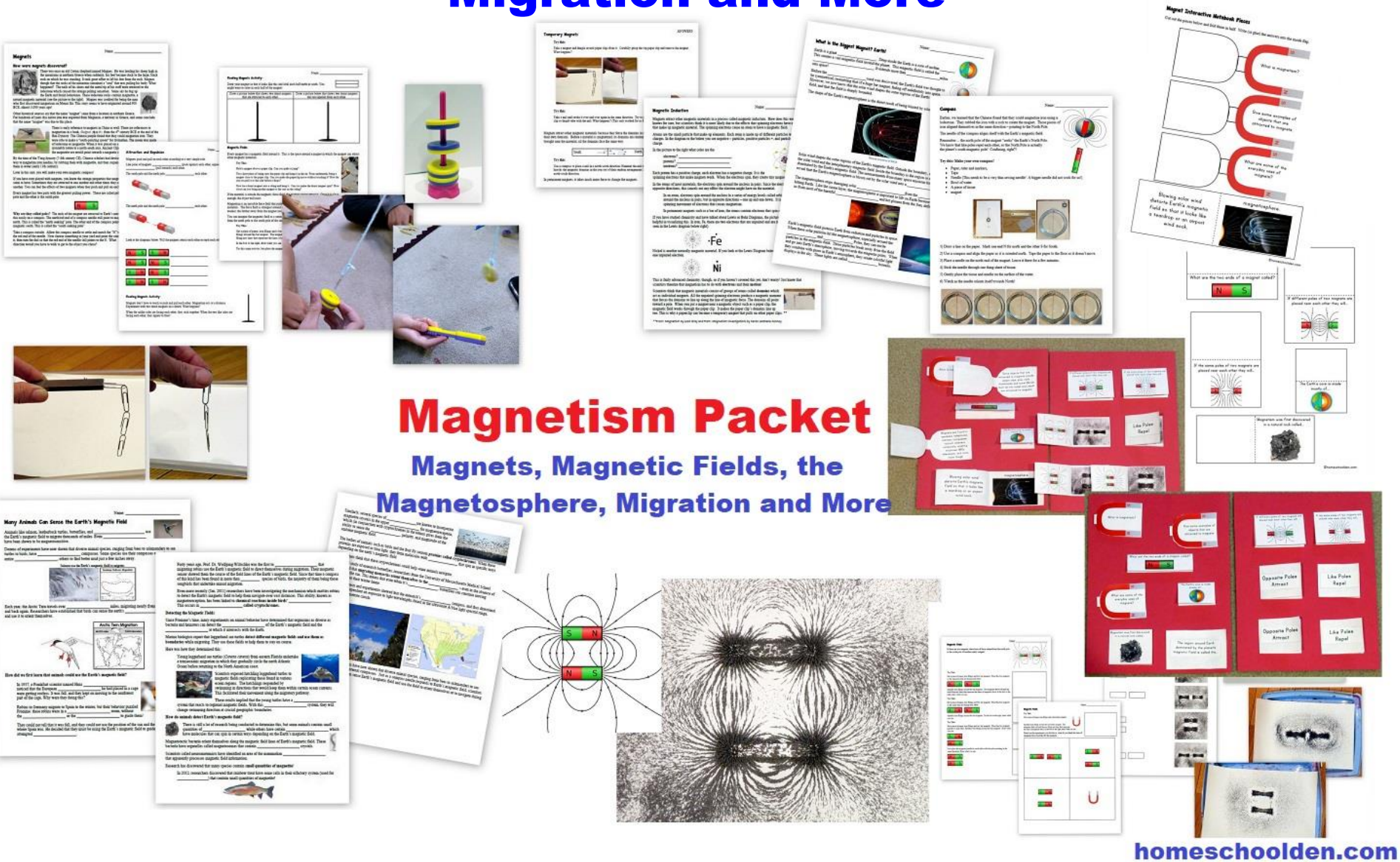
Magnetism Packet

Magnets, Magnetic Fields, the Magnetosphere & Migration and More

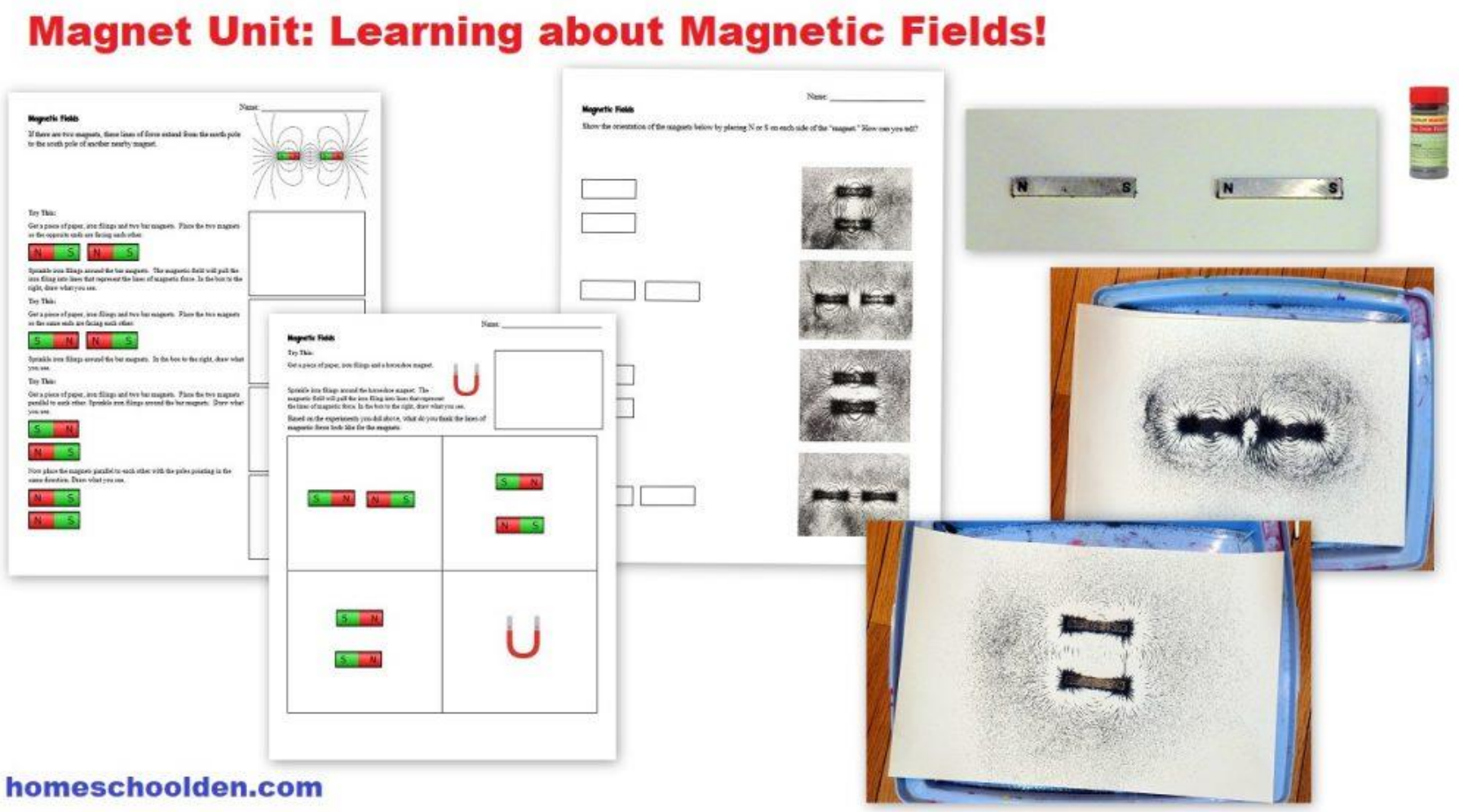


Some of the items you need for this unit

- 2 Bar Magnets
- 1 horseshoe (or U) magnet
- Donut Magnet (sometimes called Magnet Rings)
- Iron Filings
- Boy Scout Compass
- Very thin sewing needle

Magnetic Fields:

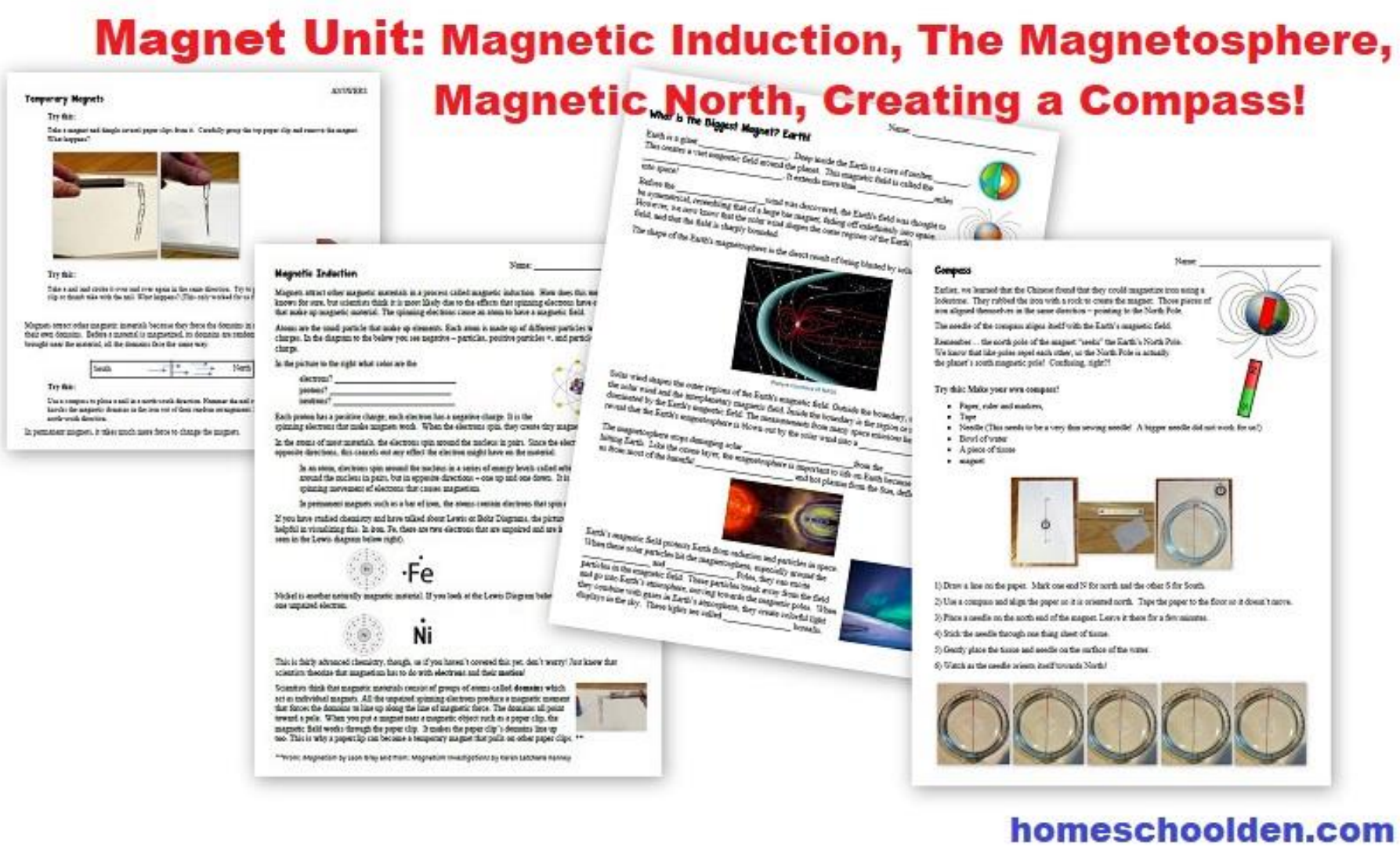
We talked about magnetic fields and then did a number of hands-on activities to explore the magnetic fields generated by magnets in various positions. The kids *loved* this! Again, you will find the Iron Filings here. Be really generous when you shake the filings... it makes the magnetic fields stand out more.



Magnetic Induction, the Magnetosphere, Making a Homemade Compass:

We went on to talk about magnetic induction & the movement of electrons. We talked about domains and how temporary domains give items temporary magnetic properties. Then we talked about the magnetosphere and Earth's magnetic fields.

The kids each made their own **floating compass**. Remember that if you do this activity you need a very thin, light sewing needle. Larger needles will sink! :)

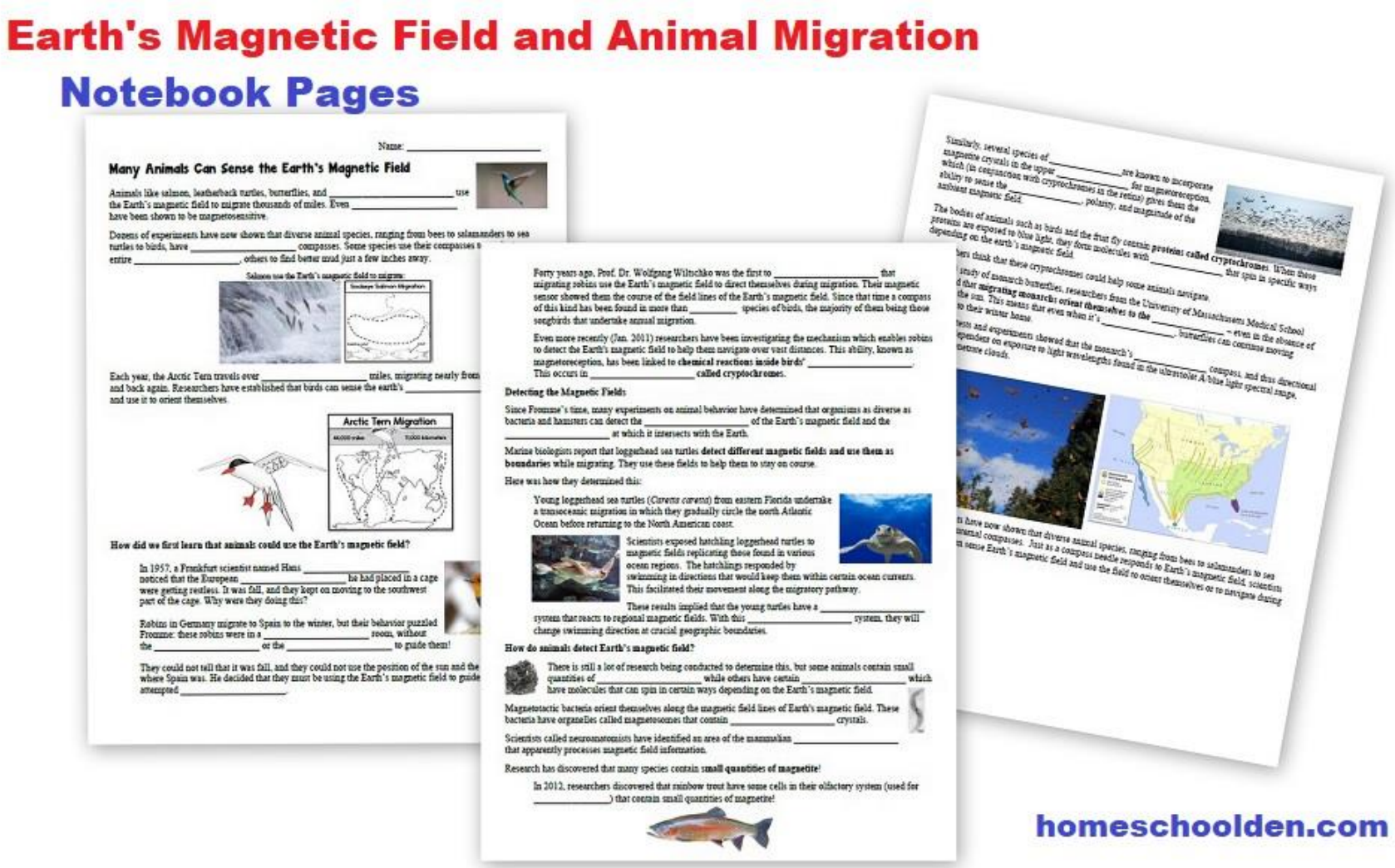


Earth's Magnetic Field and Animal Migration:

The last part of our magnet unit was all about animal's ability to detect the Earth's magnetic field.

We learned about some of the experiments scientists have done to uncover how animals are able to detect the magnetic field. It ranges from animals actually having magnetite inside them, to various proteins that change in the presence of light and create magnetic cells. This is some cutting-edge science at the moment, so there's no doubt that more will be uncovered in the coming years about how animals use magnetism to migrate thousands of miles!

Below I've pictured the notebook pages, but there is a full-text set provided as well if you just want to read through this material with your kids. :)

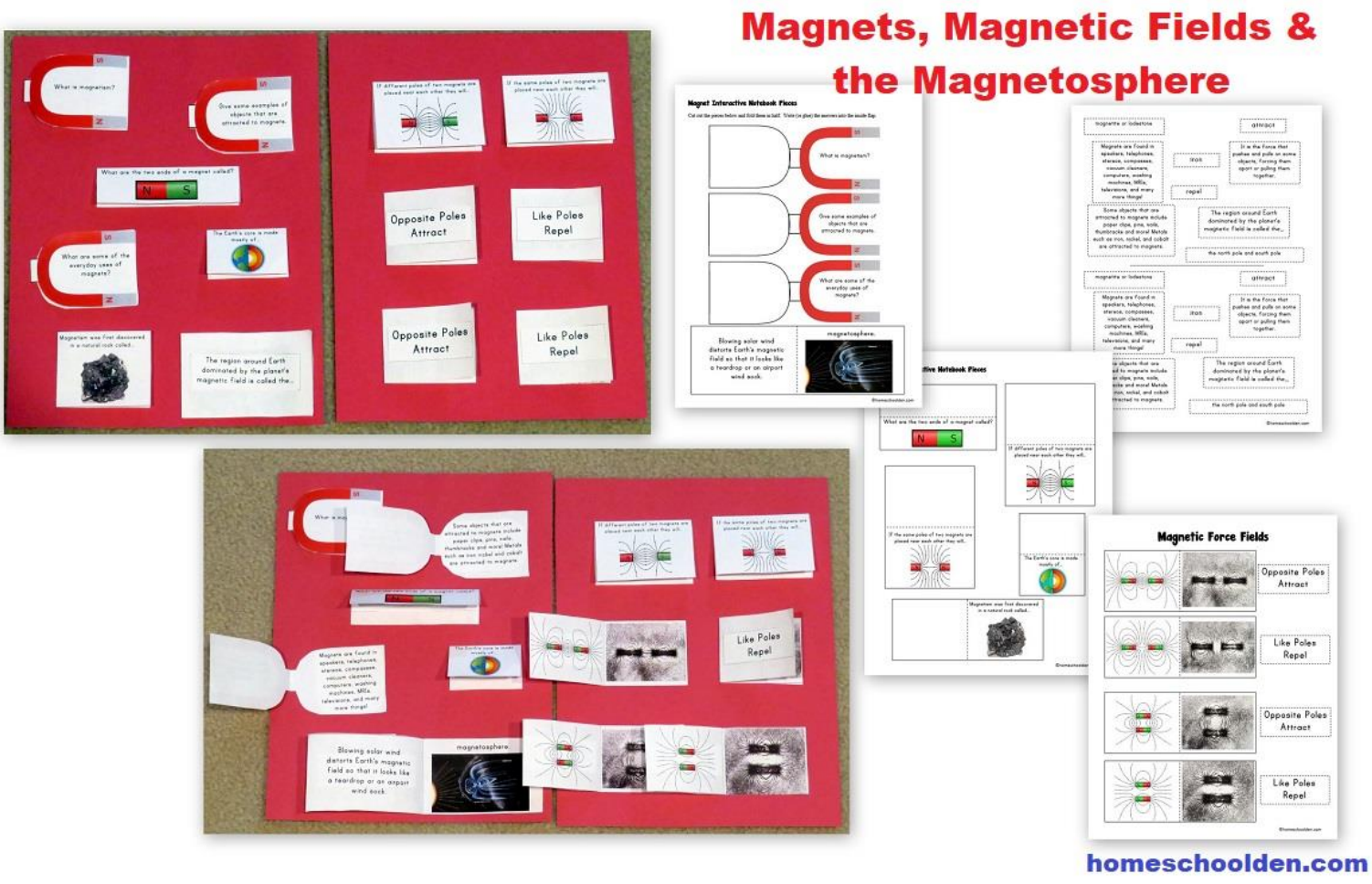


Magnets, Magnet Fields & the Magnetosphere Interactive Notebook Activity:

Our last activity was to create some interactive notebook pages that the kids added to their science notebook. Students can either glue the pieces onto paper (as we did below), directly into a notebook or they can create a lapbook with the materials provided.

We used this as our final wrap up and review, but it can be used to introduce students to the materials as well. Students can either cut out the suggested answers or they can write their own answers into the insides of the pieces. Some of the questions it covers include:

- What is magnetism?
- Give some examples of objects that are attracted to magnets.
- What are some of the everyday uses of magnets?
- The region around Earth dominated by the planet's magnetic field is called the… magnetosphere
- What are the two ends of a magnet called?
- The second page is mostly about magnetic fields



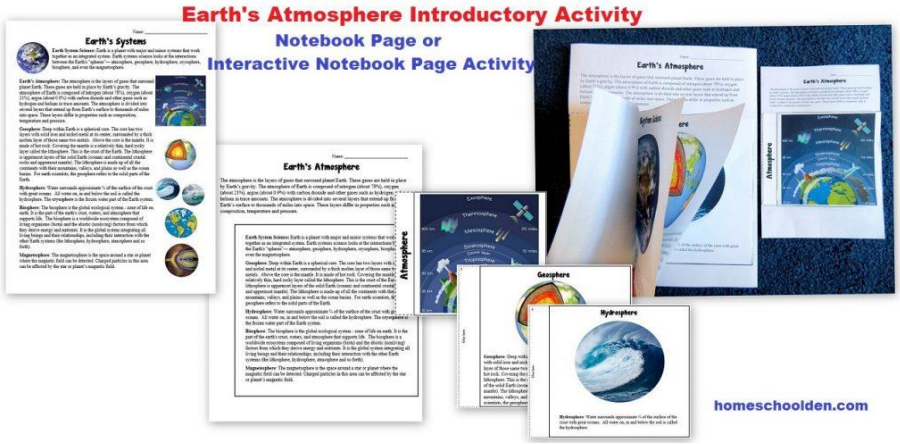
What ages is this packet for? I would say this packet is suitable for **3rd - 7th grades** or so (ages 8-13 or so) - of course younger kids will love doing all the hands-on activities, so it is adaptable for homeschool families. My girls are 10 and just turned 13. They both enjoyed this unit a lot. I also had my high school aged (15-year old) son review some of the material with us and as I said above, we all really enjoyed playing around with the magnets and iron filings! :)

Is any background needed? My kids have a pretty good understanding of atoms (electrons, protons and neutrons). It is not necessary, but there is some discussion of electron orbitals that you may have to gloss over. (We did a Chemistry Unit last spring and went into a lot of detail about the periodic table, Bohr and Lewis Diagrams, etc.) Also, let me share what we were doing just before we jumped into this our Magnet Unit:

Just so you know, earlier this semester, my daughter (age 10) did the Where I Live Activity Packet (My galaxy, solar system, planet, continent, country, state, town, and home!). Then we moved on to the Layers of the Atmosphere Packet. We had just finished the introductory activity (below) when I decided to take this detour and talk about the magnetosphere and magnetic fields in more depth.

Earth's Systems: Geosphere, Hydrosphere, Magnetosphere, Biosphere, Atmosphere

This activity reviews all of Earth's Systems: geosphere, hydrosphere, biosphere, magnetosphere, atmosphere



Again, neither of those units are necessary to do before this one, but I wanted you to know what we were up to! :) The Earth's Systems activity (above) is in the Layers of the Atmosphere Packet **not** in the Magnet Packet below.

The Magnetism Packet is 25+ pages.

Let me know if you have any questions! ~Liesl Liesl@homeschoolden.com