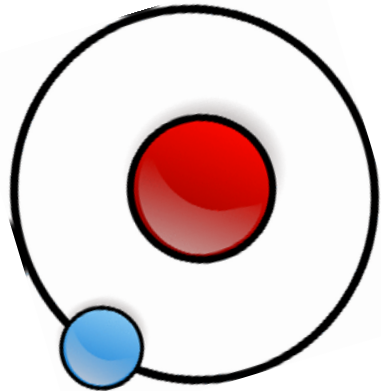
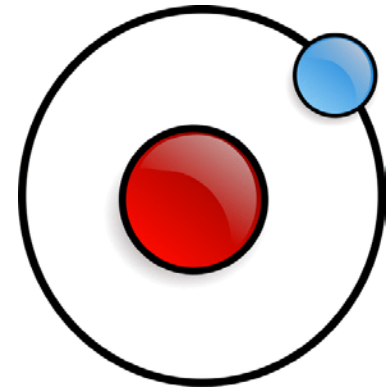


Our Science Survey: The Results!



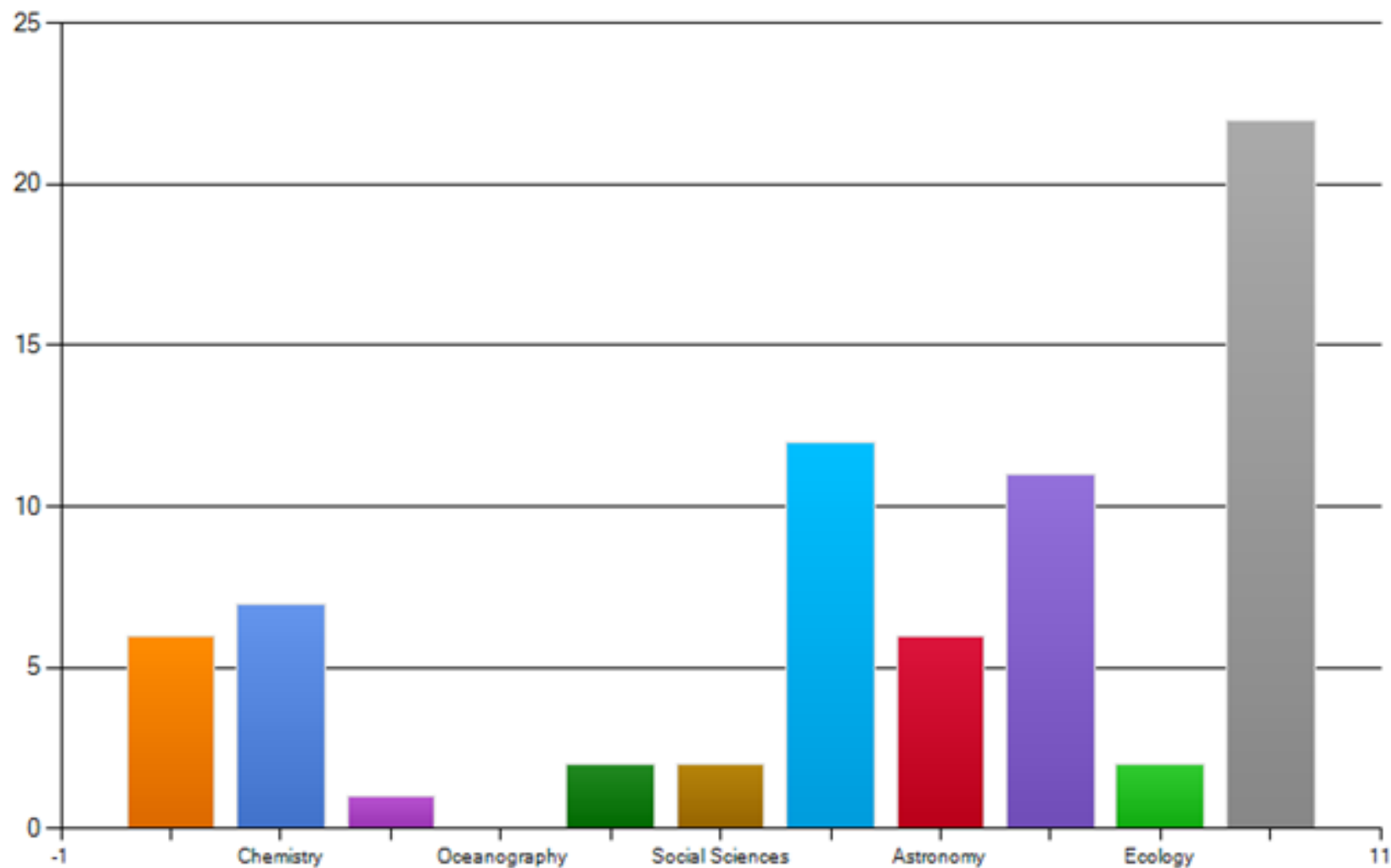
Miss Kelly's Third Grade Class
Sept. – Oct., 2013



Question One:
What area of Science do you study?



What area of science do you study?



I am a student of the sciences. (college major or graduate student)

Meteorology

Botany

Physics

Biology

10

Medical Microbiology

Plant Pathology

nanotechnology

Psychology - 2

Material Science – 2 - *the study of all materials, somewhere between physics and chemistry*

Math Computer

Biochemistry (I look at proteins and DNA)

Planetary Science - 3 - *It's a rather interdisciplinary field, in which many of the physical sciences listed here are applied to planets besides the Earth. I consider myself primarily a Geophysicist, someone who studies the physical processes that relate to the Earth, such as heat flow, seismic waves, electricity and magnetism, radioactive decay, fluid motions, and deformation. As a Planetary Geophysicist, I apply these phenomena to other planets in the solar system.*

Bioarchaeology

Geology

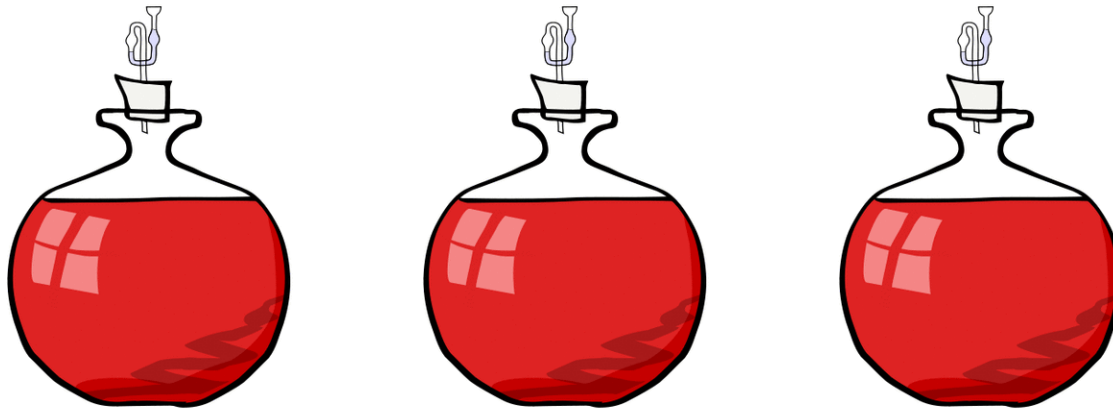
Archaeology

Engineering – 3 - *environmental, biomedical, neurorehabilitation,*

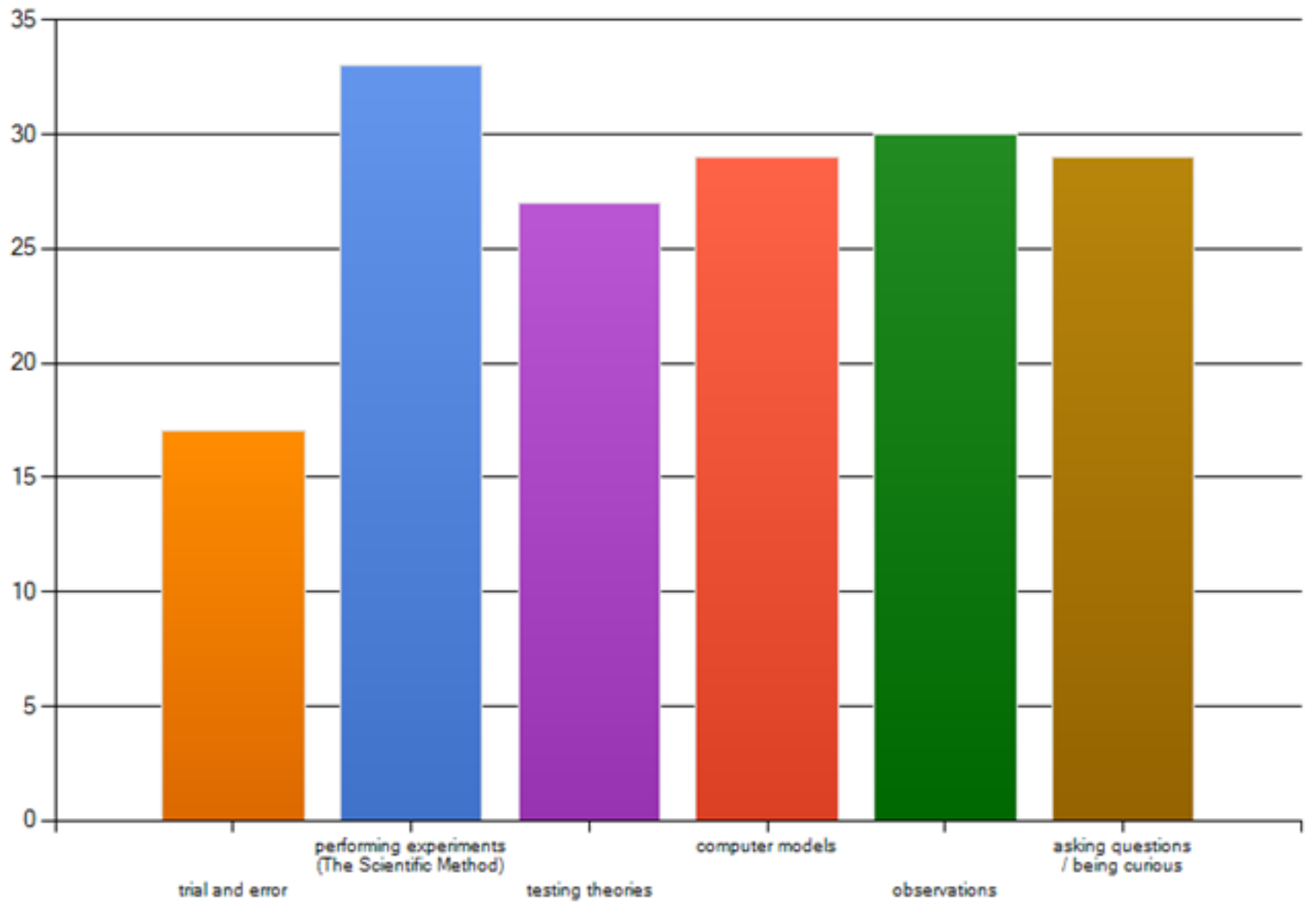
OCEANOGRAPHY AND EARTH SCIENCE

Pharmaceutical Science

Question Two:
How is new scientific information
discovered in your field of study?



In the present, how is new scientific information discovered (in your field of study)?



Some of the comments included these responses:

- Experiments are critical, but it all starts with careful **observation**.
- space missions (i.e. big **government-led** projects)
- **Finding** new specimens
- Going to **sea** in research ships & **making measurements** to test **hypotheses**.
- Many projects analyze things observed **by chance in** an earlier project **that focused on something else**.
- I think that scientists rarely follow the Scientific Method in the way
that it is presented to school students.
- We try to **be curious about things** that happen in our immediate environment and then we seek to identify what makes those observed things happen

- **Observations lead to an idea** of how something might work and then that idea is **tested experimentally**.

- Through **laboratory work, computer modeling, theoretical studies,** and **observational studies...** all done by scientists at **national labs, universities,** and industrial **companies**.

-The **Scientific Method**. Scientists develop and study new compounds, and then test their effects on human health.

- **Trial and error, research, experimentation**

- Physicists make new discoveries by **exploring their curiosities** about nature. This can be done either by **coming up with new theories** about how the universe works, or by **performing experiments** that test the behavior of nature in previously unexplored circumstances.

-Physicists often **work in groups,** ranging in size from a few to hundreds of scientists.

Let's talk about percentages!

100%

50%

25%

75%



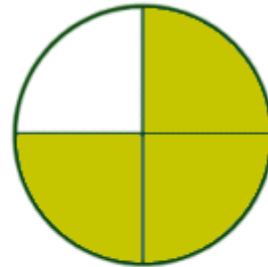
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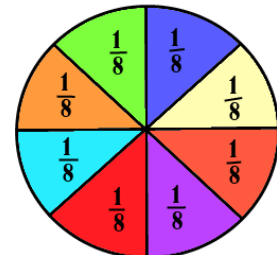
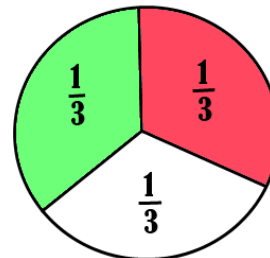
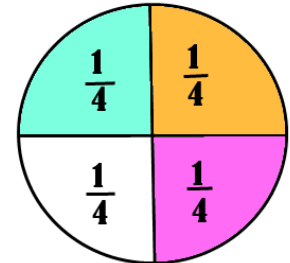
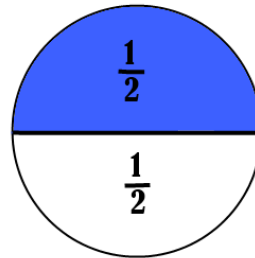
$\frac{1}{2}$



$\frac{1}{4}$



$\frac{3}{4}$



Question Three:








In your area of science, how is new scientific information spread to the world?



3. In your area of science, how is new information spread to the world?


[Create Chart](#)

[Download](#)

		Response Percent	Response Count
Newspaper		39.6%	19
TV: News programs		31.3%	15
Radio		25.0%	12
Scientific Journal/Magazine		93.8%	45
Science Websites		66.7%	32
Presentations		70.8%	34
Video/DVD Production		18.8%	9
		Other (please specify) Show Responses	6
		answered question	48
		skipped question	0

Eventually the common media/press, **but they often confuse the information.**

Podcasts

Because of the changes in the way information is shared nowadays, we take advantage of every method **(including YouTube!)** to both gather data for some of our observations studies, as well as to share what we have discovered. **A while back, one of our famous Sensory Scientists even put a scratch-and-sniff cards into a popular scientific magazine and asked people to send back their impressions of what they smelled!** This method, like the internet, now reaches millions of people instead of the thousands who read our journals. However, only those data from journals should be trusted for further work, because other scientists have the opportunity to read and review these before they are published. This does not always happen with the other ways of spreading information.

Scientific conferences

Annual Conventions / Symposia

The statement "spread to the world" is **vague**, because we have to **distinguish between** spreading new information to other scientists (through scientific journals, websites, and presentations at conferences) and spreading new information to the general public (through newspapers, TV, radio, and websites).

Professional scientists are primarily concerned with spreading their findings to other scientists through **professional journals** and through **presentations at conferences** (meetings). In this form, the information is too technical and too specific to be of interest to the general public. Often, but not always, scientists leave the task of communicating research findings to **journalists**, only some of whom have science training. Sometimes universities and national science labs have **public relations departments** to publicize their more important studies. Some science projects do post ongoing comments for the general public through Web blogs and at special **Twitter** and **Facebook** pages, but I think that they reach a small audience.

Question Four:
How quickly (or slowly) does new
scientific information spread?



4. How quickly (or slowly) does new scientific information spread (in the world)?



Create Chart



Download

		Response Percent	Response Count
immediately		6.7%	3
extremely quickly (3-6 months)		31.1%	14
quickly (7-12 months)		26.7%	12
somewhat slowly (1-2 years)		26.7%	12
slowly (3-5 years)		4.4%	2
very slowly (6-10 years)		0.0%	0
extremely slowly (more than 10 years)		0.0%	0
the same as other (non-scientific) information		4.4%	2
never (secret or proprietary information)		0.0%	0
		Other (please specify) Show Responses	18
		answered question	45

Information can spread to other scientists almost immediately, through the internet. New ways of seeing the Universe spread more slowly.

It really depends how **significant** the study is. Highly **noteworthy** information comes out fairly quickly, while less noteworthy information may take longer.

The speed with which scientific information spreads **varies drastically** depending on the **complexity** of research and the importance of new discoveries.

After the work is submitted to the **publisher**, it can take 2-6 months for everyone to read. If it is a big new idea that runs **against the tradition** (e.g., Newton, Einstein, Darwin), it can take another 10-20 years to get truly **accepted!**

Once a discovery is made, the research will be written into a paper and submitted to a **journal**. This process can be up to a year. The problem is, a lot of people do not have **access** to science journals (they require an expensive subscription), so it's up to **science journalists** to pick up on the news!

depends on how useful it is to **society**. the most interesting is spread quickly, the more **nitty-gritty** tends to be more slowly

depends. exciting discoveries get out immediately. others might take time.

It really depends - our big stuff - life on Mars or the **Higgs Boson**, is spread very very **rapidly**. The more day to day physics needs about a year or two

Like a **rumor**, bad information can spread very quickly. So you should be **wary** of what is seen on non-scientific websites - **even newspaper sites should be questioned**. The only **trustworthy information** should be reviewed by other scientists who can judge the **accuracy and completeness** of the work. This takes time, so often it takes years for it to be published. New on-line journals are making this process faster, but the writing and revisions still take time.

it really depends on **whether society** thinks there is a problem to be solved or a need for change

Very quickly. Many journals are published online and articles are available very soon after they are accepted for publication.

In engineering, **the people with the money** want answers right away.

The speed of information spreading **varies** a lot. Some people may become aware of a discovery the next day, but they probably work with the person who made the discovery. The quickest that most knowledge spreads is through professional meetings, but those are usually held once per year, and only some people attend the meetings because of **expense** and other **obligations**. For studies that are **published** in scientific journals, it usually takes one to several years to do the research and then weeks to write and edit the results before submitting them to a journal. Then the **editor** sends the **submitted manuscript** to be reviewed by **experts in the field**, which can take a couple months or more. After the editor gets the reviews back, the editor will send them to the author(s) with a decision about the manuscript. Almost no manuscripts are accepted just the way they are submitted to a journal. Many are **rejected**, and some are accepted **subject to revision**. Revisions can take weeks to months, and then the revised manuscript is reviewed again. Often a year or more passes after **initial submission** before even a good manuscript finally appears in print.

There's usually a **delay** between **validation** (getting through the peer review process) and information spreading, but that delay is **fairly small** for NASA missions

Sometimes quickly, sometimes never (if **patents, proprietary information, and/or trade secrets** are involved)

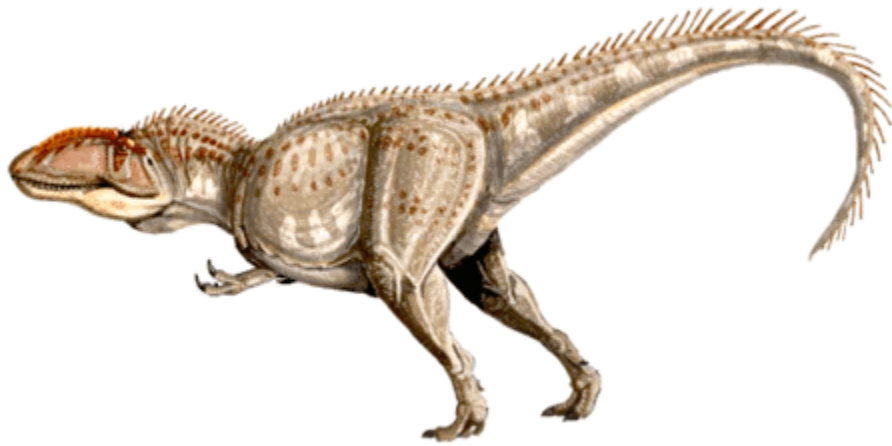
Quickly for those interested

Once the information is **verified** information spreads almost **instantaneously**.

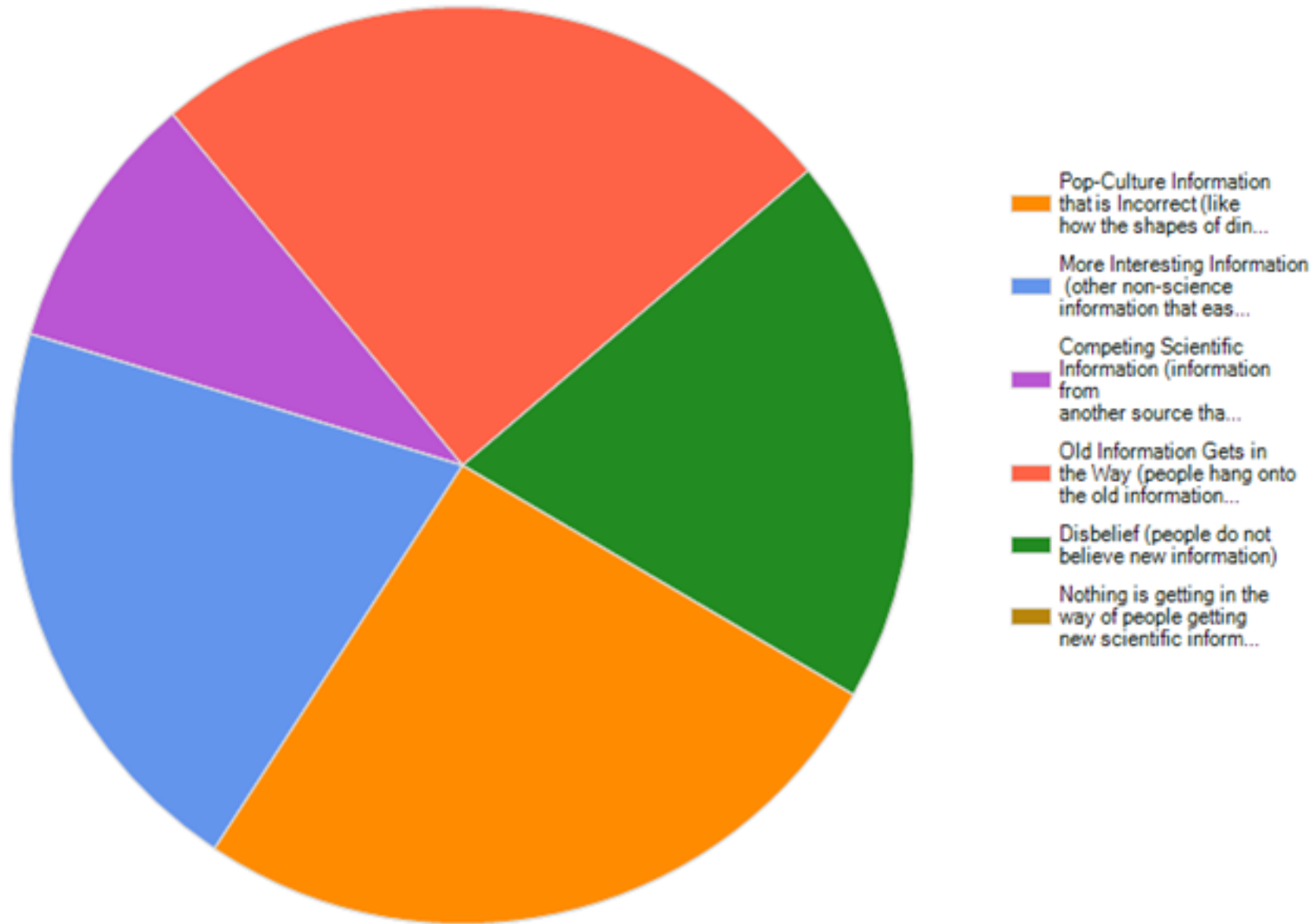
Thanks to the internet the spread of scientific information is extremely fast. If I post a scientific paper online, someone across the world can immediately **access** that information. Scientific information can also spread very quickly in the **popular media**. Some discoveries are considered so exciting that **literally** overnight the news will spread **globally**, again thanks to the internet.

Question Five:

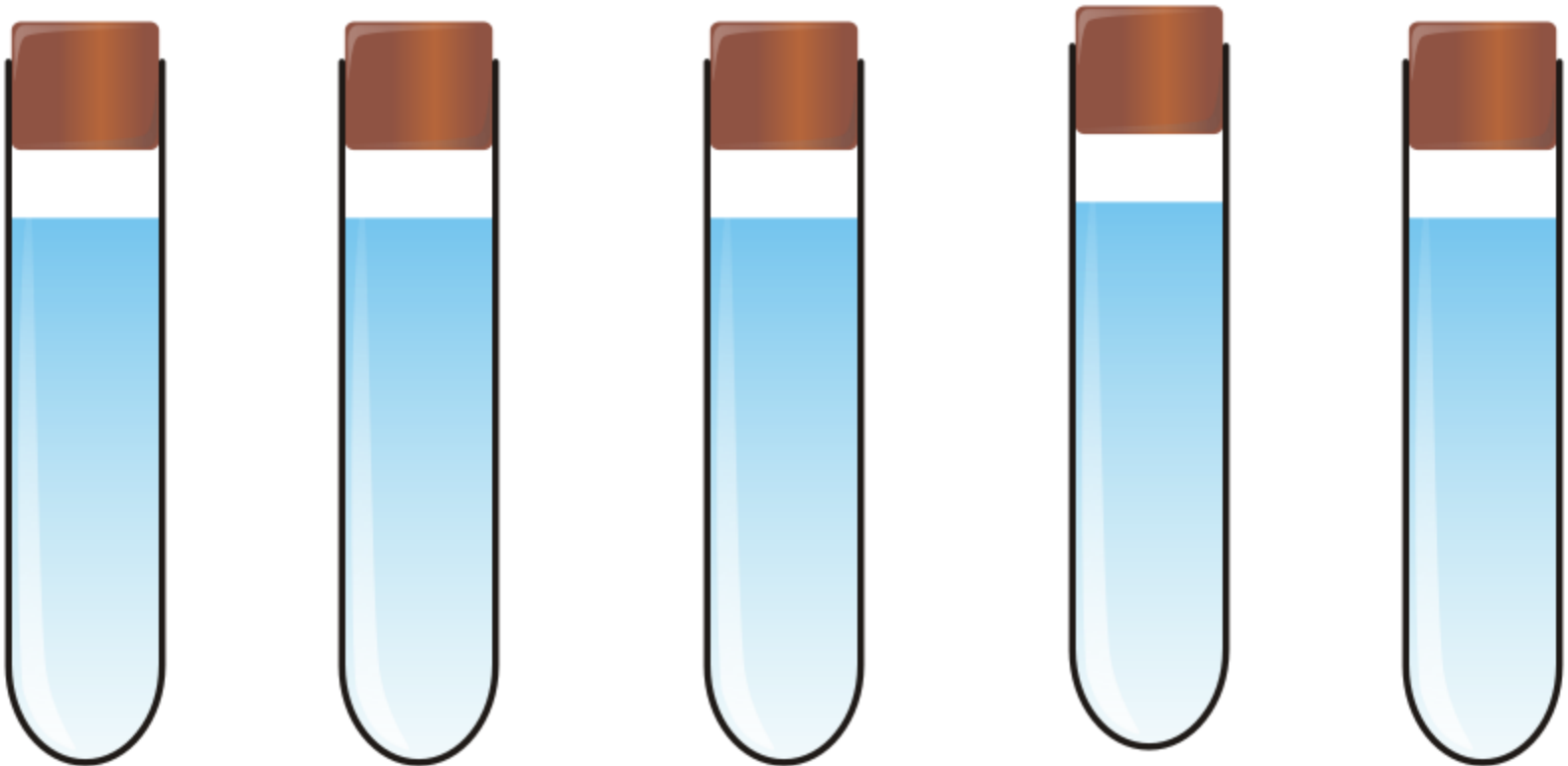
In your experience, what, if anything, gets in the way of people getting new information?



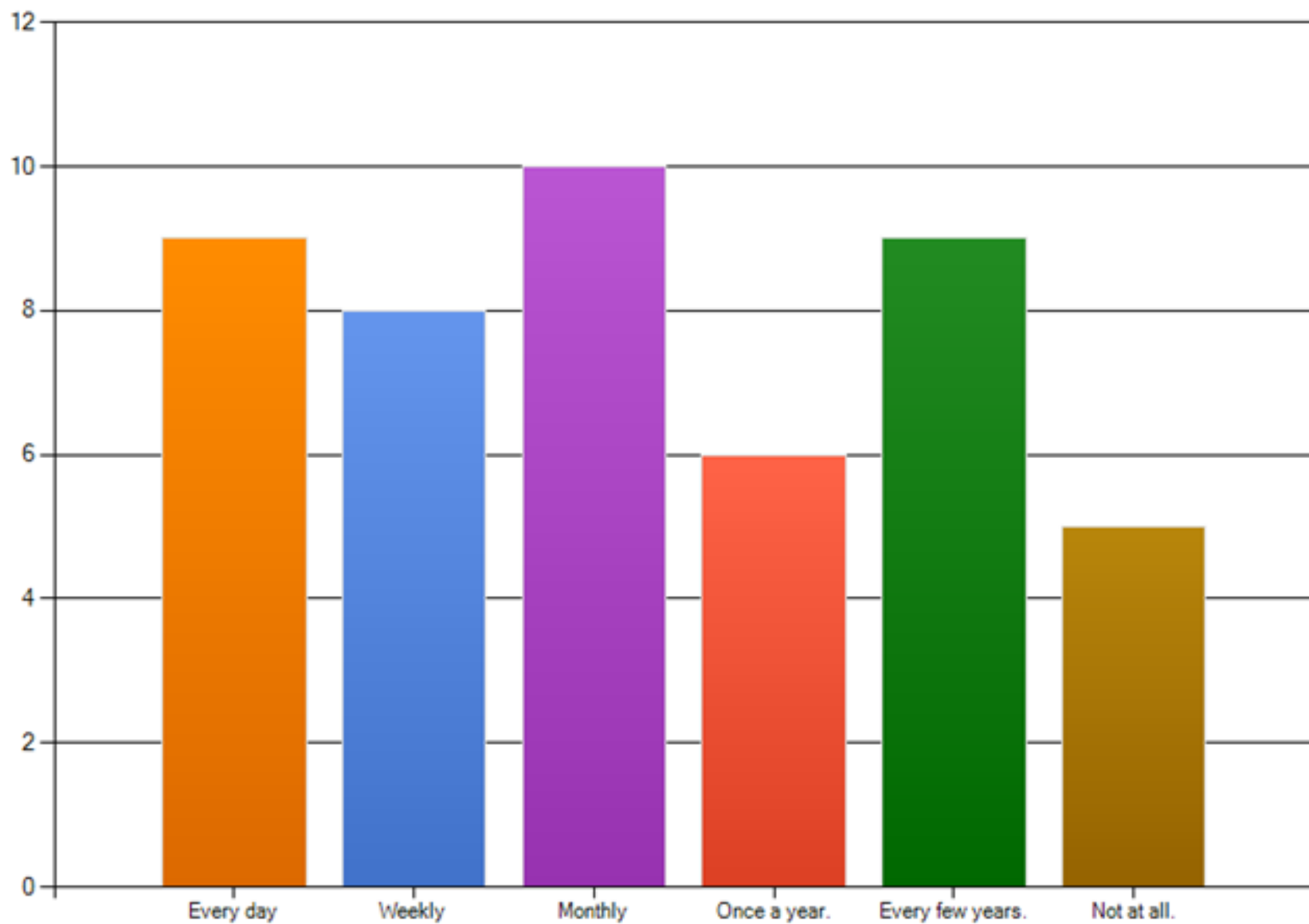
In your experience, what (if anything) gets in the way of people getting new scientific information?



Question Six:
How frequently do you work with
scientists from other countries?

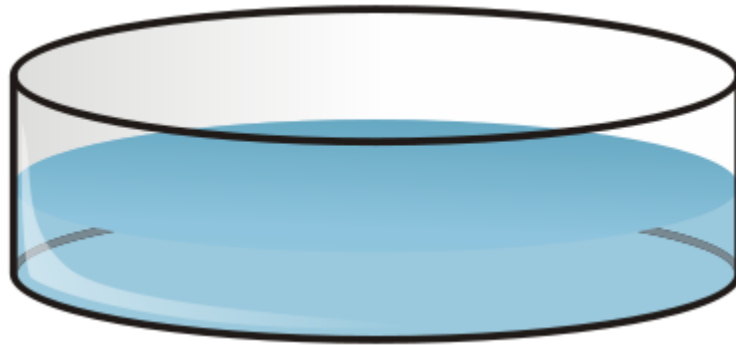


How frequently do you work with scientists from other countries?

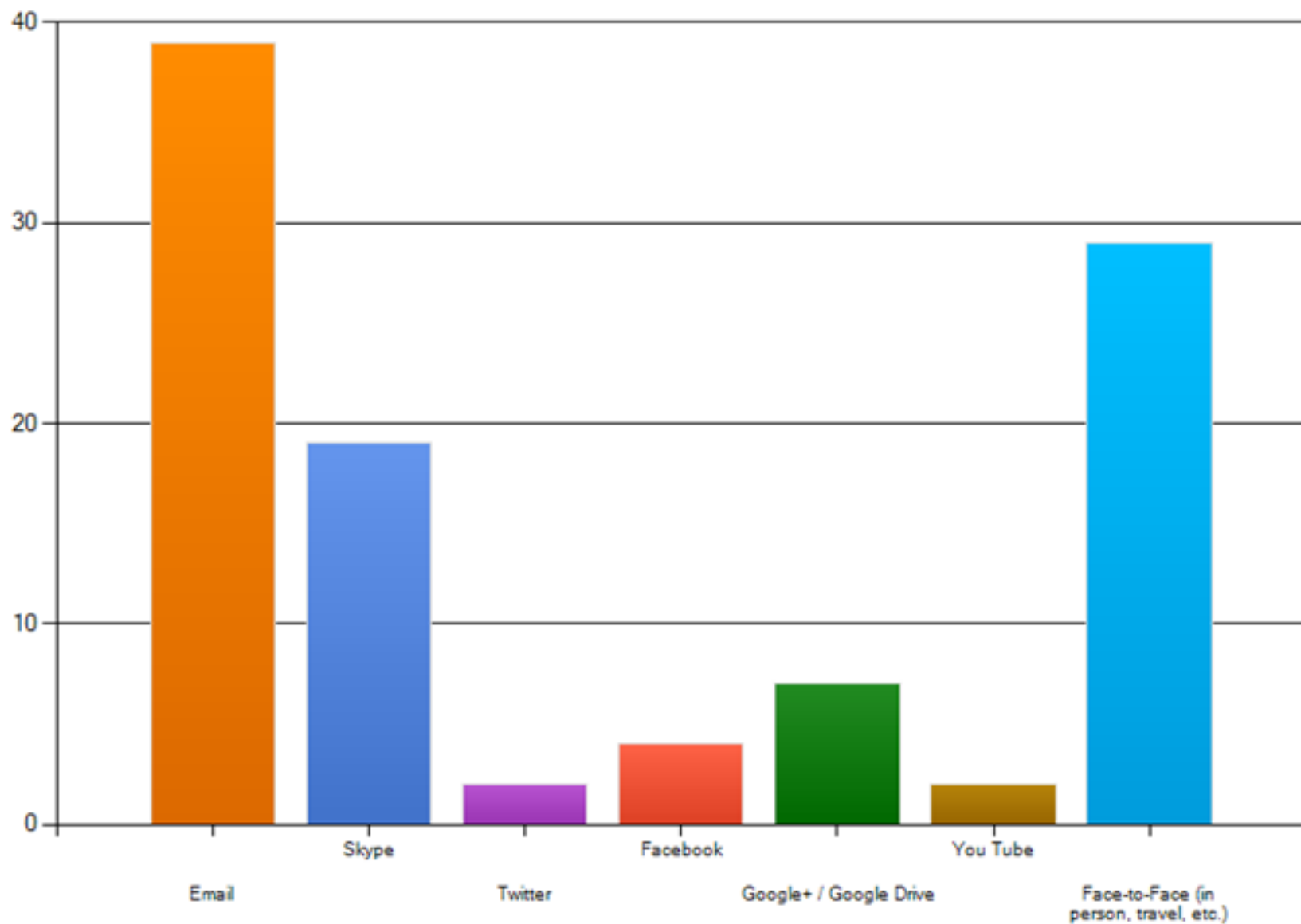


Question Seven:

If you do work with scientists from other countries, what tools do you use?



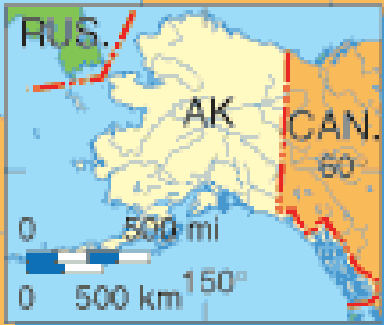
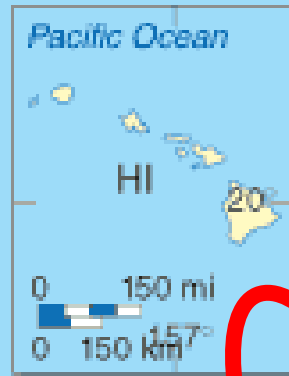
If you do work with scientists from other countries, what tools do you use?



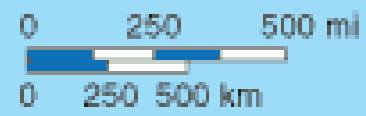
Our Survey:

- **48** scientists responded to **8** questions
- Our respondents come from **27** branches of science
- Scientists answered our surveys from **high schools, universities, and laboratories**
- Our respondents represent at least **6** states, maybe more!

N United States



- Northern Mariana Islands
- Guam
- American Samoa



- U.S. Virgin Islands
- Puerto Rico