

CREATING POSTERS WITH POWERPOINT

*Edith Starbuck, MLS
Health Sciences Library*

Create a poster using
PowerPoint.
The strategy is to make
one

giant

PowerPoint slide!



- Be prepared to present your poster

Poster Assessment Rubric: Key Presentation Elements

Criteria	Considered Excellent
Nonverbal Skills	Holds attention of audiences with direct eye contact & seldom looks at poster for guidance. Displays relaxed self confidence.
Verbal Skills	Shows enthusiasm, uses a clear voice & correct use of terms. All audience members can hear presentation.
Subject Knowledge	Demonstrates full knowledge & answers questions with appropriate elaboration. Presents in a logical & interesting sequence that enhances the abstract.
Audience Awareness	Presentation significantly increases audience understanding & knowledge of the topic. Effectively convinces the validity of the view point.

ACADEMIC POSTERS

The following are three poster examples:

Utility of Solvent-less High Speed Ball Milling in Free Radical Bromination

1) Background



Green Chemistry is the utilization of a set of principles that reduces or eliminates the use or generation of hazardous substances in the design, manufacture and application of chemical products.

High Speed Vibrational Milling (HSVM)

Solid state reactants are placed in a sealed metal vessel with a small ball bearing in the absence of solvent. The mill is programmed to run for a specific amount of time wherein the **ball bearing** is oscillated forcing the reactants together.

The energy (in the absence of heat) is provided by collisions with the ball. When the reactants come together at the right angle and orientation with respect to the ball, the desired reaction occurs. By using solid state chemistry, we are able to overcome entropy issues as well as make the process greener by eliminating the use of a solvent

The Instrumentation



HSVM uses the same principle as the traditional milling and grinding

Mortar and Pestle



Spex Certiprep 8000D
 Mixer/Mill



Canisters and ball-bearing
 used for the Mixer/Mill

Free Radical Chemistry

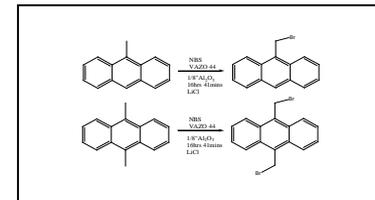
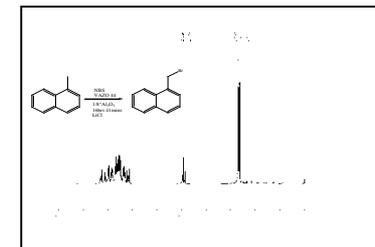
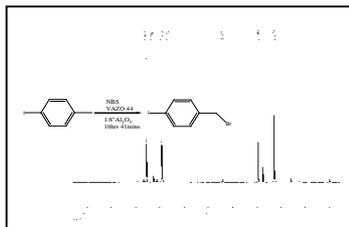
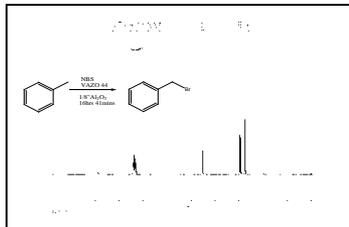
In standard solution based synthesis:

- Organic soluble free radical initiators are used
Examples: benzoyl peroxides and azo compounds
- choice of solvent is limited to benzene, **which is Carcinogenic** or Carbon tetrachloride, which is **ozone depleting**
- Free radical reductions use **toxic n-butyl tin hydride**
- A more benign and environmentally friendly alternative method is needed!

Current Project

We look to develop a solvent-free method for conducting radical reactions. Using solvent-free radical chemistry will greatly decrease the use of benzene and carbon tetrachloride in radical chemistry. We are currently investigating the free radical NBS bromination of aromatic compounds on the benzylic position. In these bromination reactions we wish to investigate whether a water soluble free radical initiator such as VAZO 44, can efficiently be used in this process as an alternative to the organic soluble free radical initiators.

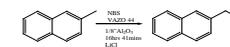
2) Results and Discussion



3) Conclusions

- Under our conditions, it was found that toluene and 4-paradiotoluene underwent bromination on the benzylic position.
- We determined that for the two and three ring systems (1-methyl-naphthalene, 9-methylanthracene and 9,10-dimethylanthracene), LiCl was needed as additive to dilute the system in order to brominate on the benzylic position.

4) Future Directions of Project



Determine the reason why the reaction of 2-methylnaphthalene with LiCl did not produce Free Radical Bromination.

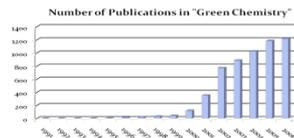
5) Acknowledgements

University of Cincinnati Department of
 Chemistry
 James Mack
 Mack Group Members
 University of Cincinnati-URC
 National Science Foundation

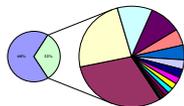
Using high speed ball milling to study the stereochemistry of the Wittig reaction

Background

'Green' chemistry strives to use as many environmentally benign methods as possible while doing chemistry



EPA Industrial Chemical Release Index



Total Waste: 11.5 billion pounds
 Total Solvent Waste: 3.7 billion pounds



This project focuses on the reduction of solvent waste by using a method called High Speed Ball Milling (HSBM)

Mechanochemistry



SPEX Shaker Mill

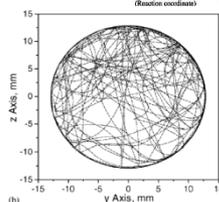
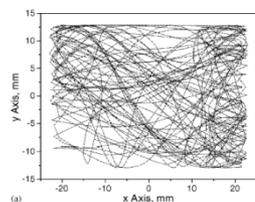
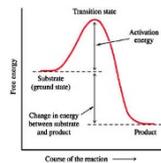


Reaction Vial

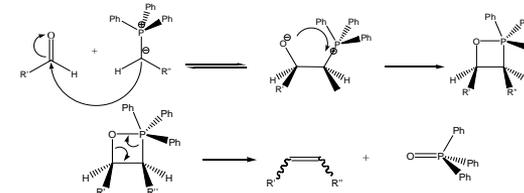


Freezer Mill

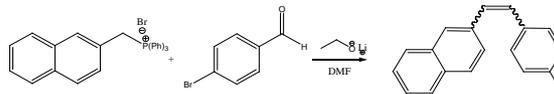
In solvent based reactions, heat energy provides the necessary activation energy. Mechanical energy in the form of a ball bearing impacting the sides of a reaction vial provides the energy in mechanochemistry. Reactions are oscillated in a figure-8 motion at 60 Hz in a mill with a ball bearing inside a reaction vial.



Wittig Reaction

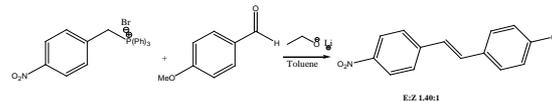
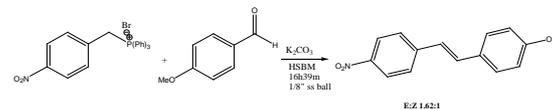


- *Z* isomer is the kinetic product; formed by the fast leaving of the triphenylphosphene oxide
- *E* isomer is the thermodynamic product; formed by the slow rotation of the double bond after the triphenylphosphene oxide leaves
- Brooks and Scott reported a ratio of 1:2.5 *E*:*Z* running the Wittig in solution



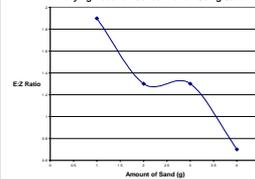
Experimental Goals:

- Find molecules that have easily measurable *J*-values and chemical shifts
- Investigate whether a reaction run in the ball mill gives different isomeric ratios than a reaction run in solution
- Observe the effect of HSBM on each isomer

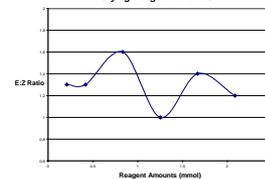


Concentration Studies

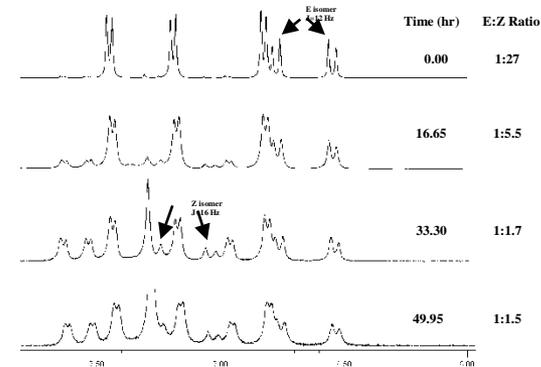
Varying Reaction Concentration Using Sand



Varying Reagent Amounts



Isomerization Using HSBM



- MALDI and Electrospray mass spectrometry indicated polymerization as the duration of ball milling increased
- Polymerization suggests a diradical mechanism pathway
- HSBM of the *E* isomer showed no isomerization, although mass spectrometry indicated polymerization

Future Directions

- HSBM of known *E* isomers to prove isomerization
- HSBM of multiple *E* isomers simultaneously to disprove 2+2 addition
- Further understand the isomerization process by putting *E* isomers in varying concentrations of sand
- Explore time dependence of HSBM on stereoisomeric ratio
- Investigate the role triphenylphosphene oxide plays in the reaction

References

1. <http://www.epa.gov>
2. Concas, A.; Lai, N.; Pisu, M.; Cao, G. *J. Chem. Eng. Sci.* 2006, 61, 3746-3760
3. Michele, A.B.; Lawrence, T.S. *J. Am. Chem. Soc.* 1999, 121, 5444-5449

Acknowledgments



- NSF-REU Grant CHE 0754114
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- The Mack Group



PIGS IN SPACE: EFFECT OF ZERO GRAVITY AND AD LIBITUM FEEDING ON WEIGHT GAIN IN CAVIA PORCELLUS



SPACE EXES

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ABSTRACT:

One ignored benefit of space travel is a potential elimination of obesity, a chronic problem for a growing majority in many parts of the world. In theory, when an individual is in a condition of zero gravity, weight is eliminated. Indeed, in space one could conceivably follow ad libitum feeding and never even gain an gram, and the only side effect would be the need to upgrade one's stretchy pants ("exercise pants"). But because many diet schemes start as very good theories only to be found to be rather harmful, we tested our predictions with a long-term experiment in a colony of Guinea pigs (*Cavia porcellus*) maintained on the International Space Station. Individuals were housed separately and given unlimited amounts of high-calorie food pellets. Fresh fruits and vegetables were not available in space so were not offered. Every 30 days, each Guinea pig was weighed. After 5 years, we found that individuals, on average, weighed nothing. In addition to weighing nothing, no weight appeared to be gained over the duration of the protocol. If space continues to be gravity-free, and we believe that assumption is sound, we believe that sending the overweight — and those at risk for overweight — to space would be a lasting cure.

INTRODUCTION:

The current obesity epidemic started in the early 1960s with the invention and proliferation of elastane and related stretchy fibers, which released wearers from the rigid constraints of clothes and permitted monthly weight gain without the need to buy new outfits. Indeed, exercise today for hundreds of million people involve only the act of wearing stretchy pants in public, presumably because the constrictive pressure forces fat molecules to adopt a more compact tertiary structure (Xavier 1965).

Luckily, at the same time that fabrics became stretchy, the race to the moon between the United States and Russia yielded a useful fact: gravity in outer space is minimal to nonexistent. When gravity is zero, objects cease to have weight. Indeed, early astronauts and cosmonauts had to secure themselves to their ships with seat belts and sticky boots. The potential application to weight loss was noted immediately, but at the time travel to space was prohibitively expensive and thus the issue was not seriously pursued. Now, however, multiple companies are developing cheap extra-orbital travel options for normal consumers, and potential travelers are also creating news ways to pay for products and services that they cannot actually afford. Together, these factors open the possibility that moving to space could cure overweight syndrome quickly and permanently for a large number of humans.

We studied this potential by following weight gain in Guinea pigs, known on Earth as fond of ad libitum feeding. Guinea pigs were long envisioned to be the "Guinea pigs" of space research, too, so they seemed like the obvious choice. Studies on humans are of course desirable, but we feel this current study will be critical in acquiring the attention of granting agencies.

MATERIALS AND METHODS:

One hundred male and one hundred female Guinea pigs (*Cavia porcellus*) were transported to the International Space Laboratory in 2010. Each pig was housed separately and deprived of exercise wheels and fresh fruits and vegetables for 48 months. Each month, pigs were individually weighed by duct-taping them to an electronic balance sensitive to 0.0001 grams. Back on Earth, an identical cohort was similarly maintained and weighed. Data was analyzed by statistics.

RESULTS:

Mean weight of pigs in space was 0.0000 +/- 0.0002 g. Some individuals weighed less than zero, some more, but these variations were due to reaction to the duct tape, we believe, which caused them to be alarmed push briefly against the force plate in the balance. Individuals on the Earth, the control cohort, gained about 240 g/month ($p = 0.0002$). Males and females gained a similar amount of weight on Earth (no main effect of sex), and size at any point during the study was related to starting size (which was used as a covariate in the ANCOVA). Both Earth and space pigs developed substantial dewlaps (double chins) and were lethargic at the conclusion of the study.

CONCLUSIONS:

Our view that weight and weight gain would be zero in space was confirmed. Although we have not replicated this experiment on larger animals or primates, we are confident that our result would be mirrored in other model organisms. We are currently in the process of obtaining necessary human trial permissions, and should have our planned experiment initiated within 80 years, pending expedited review by local and Federal IRBs.

ACKNOWLEDGEMENTS:

I am grateful for generous support from the National Research Foundation, Black Hole Diet Plans, and the High Fructose Sugar Association. Transport flights were funded by SPACE-EXES, the consortium of wives divorced from insanely wealthy space-flight startups. I am also grateful for comments on early drafts by Mañana Athletic Club, Corpus Christi, USA. Finally, sincere thanks to the Cuy Foundation for generously donating animal care after the conclusion of the study.

LITERATURE CITED:

NASA. 1982. Project STS-XX: Guinea Pigs. Leaked internal memo.
 Sekulić, S.R., D. D. Lukač, and N. M. Naumović. 2005. The Fetus Cannot Exercise Like An Astronaut: Gravity Loading Is Necessary For The Physiological Development During Second Half Of Pregnancy. *Medical Hypotheses*. 64:221-228.
 Xavier, M. 1965. Elastane Purchases Accelerate Weight Gain In Case-control Study. *Journal of Obesity*. 2:23-40.



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<http://colinpurrington.com/tips/academic/posterdesign>

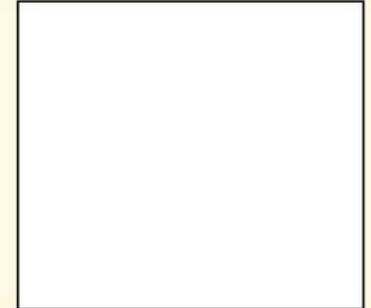
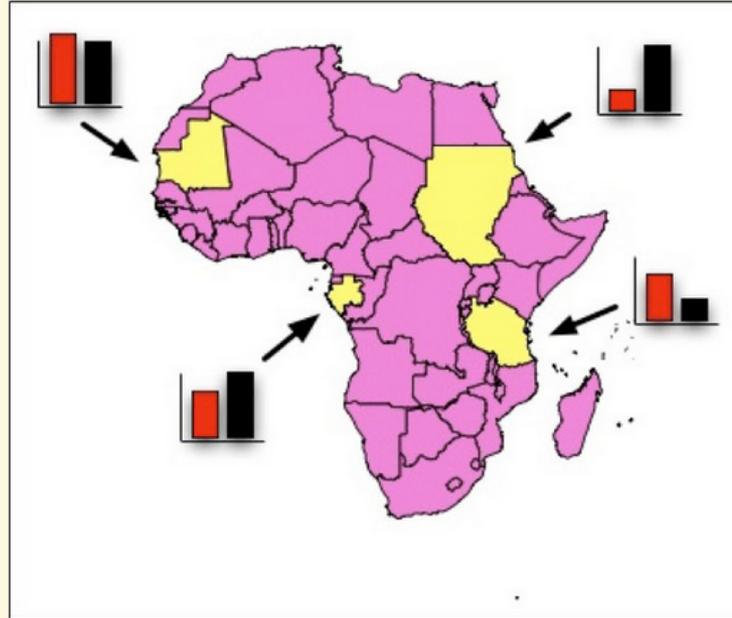
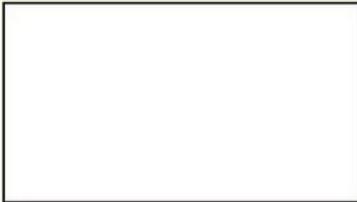
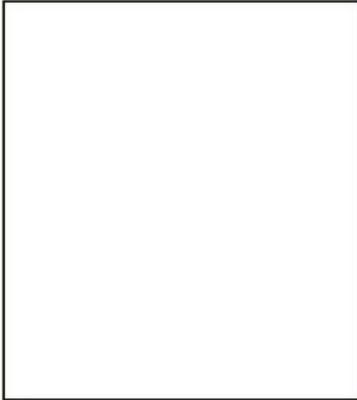
A Poster

- Tells a story concisely, using a minimal amount of text
- Includes photos, illustrations or graphs that clarify and enhance the story
- Uses a font that can be read from 5 feet away, especially the title
- Has a logical and obvious progression through the poster elements
- Includes references and acknowledgements

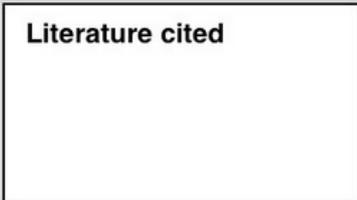
1. Purrington, C.B. Designing conference posters. Retrieved 4/3/17, from <http://colinpurrington.com/tips/poster-design>.
2. Mack, J. Creating an effective poster presentation. Retrieved 4/3/17, from <https://grad.uc.edu/research/expo/resources.html>

Your fascinating poster title

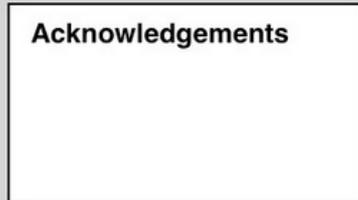
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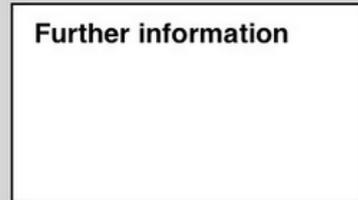
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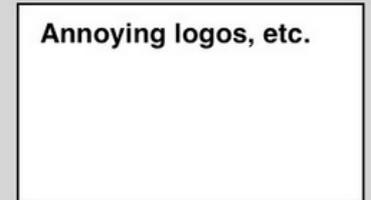
Acknowledgements



Further information



Annoying logos, etc.



Title, formatted in sentence case (Not Title Case and NOT ALL CAPS), that hints at an interesting issue and/or methodology, doesn't spill onto a third line (ideally), and isn't hot pink

Colin Purrington

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Introduction

Congratulations: a reader was mildly intrigued by your title. Now you have 2-3 sentences to hook him/her into reading more by describing what your question was and why the answer might be of general interest. Gratuitous background information will cause them to walk away (if you're standing next to your poster, that can be awkward).

Typography research has shown that body text is easier to read if you use a serif font such as Times. But non-serif fonts are great for title, headings, figure legends, etc. Research also shows that fully justified text (this paragraph) is slightly harder to read even though it looks really cool.



Figure 1. A photograph in your introduction can help lure people to your otherwise non-photogenic research. If it's not your image, ask photographer for permission to use, and cite him/her.

Materials and methods

Few people, if any, really want to know the gruesome details of what you've been up to, so be brief. Use lightly-annotated photographs, drawings, or flow charts to visually convey your general experimental approach. To better engage viewers in your protocol or system, try attaching actual objects such as study organism (dead specimen), research gizmo, photo flip book, or a short movie (attach an old smartphone with Velcro).



Figure 2. Hire an artist to illustrate the important step in your protocol. A photograph of you actually doing something might be nice, too. [image by John Snow 1853]

Literature cited

Bender, D.J., E.M. Bayne, and R.M. Brigham. 1996. Lunar condition influences coyote (*Canis latrans*) howling. *American Midland Naturalist* 136:413-417.

Brooks, L.D. 1988. The evolution of recombination rates. Pages 87-105 in *The Evolution of Sex*, edited by R.E. Michod and B.R. Levin. Sinauer, Sunderland, MA.

Results

The overall layout in this arena should be visually compelling, with clear cues on how a reader should travel through the components. Be creative. You might want a large map with inset graphs, or have questions on left with answers and supporting graphs on right. Be sure to separate figures from other figures by generous use of white space. When figures are too cramped, viewers get confused about which figures to read first and which legend goes with which figure.

If you can add small drawings or icons to your figures, those visual cues can be priceless aids in orienting viewers. And use colored arrows or callouts to focus attention on important parts of graphs. You can even put text annotations next to arrows to tell reader what's going on that's interesting in relation to the how the hypothesis is being evaluated. E.g., "This outlier was most likely caused by contamination when I sneezed into tube." Also, don't be afraid of using colored connector lines to show how one part of a figure relates to another figure. These tips might induce gasps for published manuscript, but posters can be more personal and thus better guide viewers.

Figures are preferred but tables are sometimes unavoidable, like death. But go to great efforts to make it look professional. Look in a respected journal and emulate the layout, line types, line thickness, text alignment, etc., exactly. Again, use colored text or arrows to draw attention to important parts of the table.

Paragraph format is fine, but so are bullet lists of results:

- 9 out of 12 brainectomized rats survived
- Brainectomized rats ate less
- Control rats completed maze faster, on average, than rats without brains

Do treatments differ in their effects?

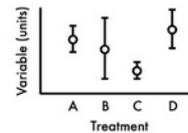


Figure 3. Legends can briefly describe the experiment, answer the question, and even include statistics if you so choose (unlike a manuscript figure legend).

Do As and Bs respond differently to X?

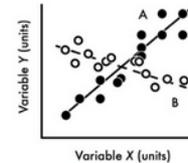


Figure 4. Label elements instead of relying on annoying keys that are default on most software. Add pictures of A and B if they are actually things (e.g., icons of rat with, without brain).

Are medians of treatment A and D different?

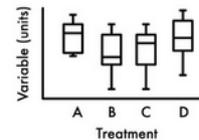


Figure 5. Don't be tempted to reduce font size in figure legends, axes labels, etc. This is because viewers are probably most interested in reading your figures and legends.

Conclusions

Conclusions should not be dry restatements of your results. You want to guide the reader through what you have concluded from results, and you need to state why those conclusions are interesting (i.e., don't assume reader will guess). These first several sentences should refer back to the burning issue mentioned in the introduction. If you didn't mention a burning issue in the introduction, fix that.

A good conclusion will also explain how your conclusions fit into the literature on the topic. E.g., how exactly does your research add to what is already published on the topic? It's important to be humble and generous in this section, partly because authors of previous literature may still be alive and even attending the conference. You can also display your appreciation of others' input by citing conversations you have had (with pers comms).

Finally, you want to tell readers who have lasted this long what might be done next and who should do it. E.g., are you currently taking the next logical step, or should another person with different skills follow up on your amazing research? It's OK to put a bit of personality into this ending because viewers expect posters to be personal (and if you're not actually standing there to convey your enthusiasm, your poster text should be doing that for you).

If you have a graphical way to express the next step of your hypothesis, by all means include it in this section. For example, you might make a graph with hypothetical data that shows an expected result in a future experiment. That's something you normally don't show in a traditional manuscript, but it's totally fine for a poster.

If you're curious, this poster has 683 words. Aim for 500 words. If you are above 1000 words, your poster will be annoyingly long to everyone except your collaborators.

A well designed poster retains plenty of white space separating edges of text boxes, graphics, and tables. You also want space between your text and edge of box. Without white space a poster will look cramped and uninviting.

Acknowledgments

We thank I. Gülor for laboratory assistance, Mary Juana for seeds, and Herb Isside for greenhouse care. Funding for this project was provided by the Department of Theology. Note that people's titles are omitted (titles are TMI).

Further information

More tips (and templates) can be found at "Designing conference posters":

<http://colinpurrington.com/tips/poster-design>

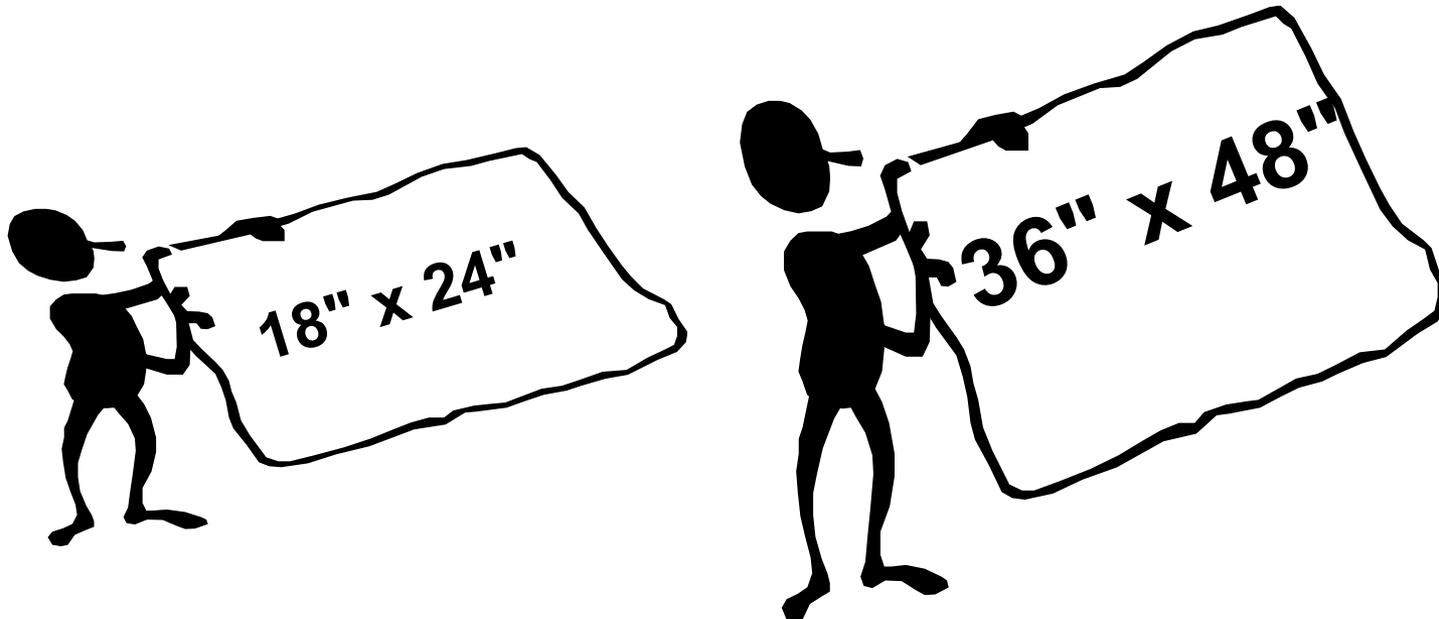
Set your PowerPoint page size first!!!

- Check with your printer
- Do not change the page size after you've added content...it may get distorted

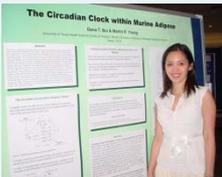


Poster Size

- 56" is the largest size in PowerPoint
- Posters are typically 36"x48"
- Proportional design may be necessary or just helpful



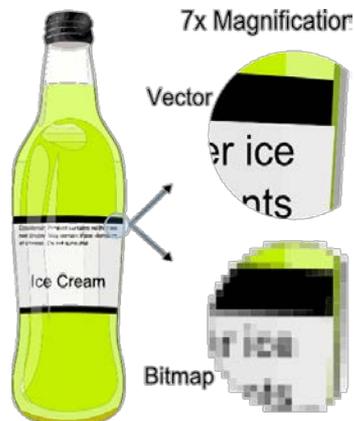
Design Proportionally

 Printer Enlargement	 Final Poster Size	 Page Size in PowerPoint
None - 100%	36" x 48"	36" x 48"
200 %	36" x 48"	18" x 24"
400 %	36" x 48"	9" x 12"

Check with your printer to see if it's better to design proportionally

Graphics

- Check with your printer first!
- At least 300 dpi resolution
- Clip Art and Excel graphs are OK
 - *vector graphics good, raster (bitmap/pixel) graphics are trickier*
- Be careful with photographs and screen shots



Source: <http://en.wikipedia.org/wiki/File:VectorBitmapExample.svg>

As a source image, this may be too small.

50 pixels x 50 pixels

2.28KB



A better size: 1200 X 1200 pixels, 226KB

24X larger!!



Fonts: Serif and San Serif

Serif Fonts (*Text*)

Times New Roman

VS.

Sans Serif Fonts (*Titles*)

Arial

Steps

