

Together for Life

Every Day of the Year

Introduction

So, why the title "Together for Life"? Because this title captures the essence of what laboratory animal science is all about—people and animals, together, devoting their lives to biomedical research to find disease cures and ways to improve the lives of both people and animals.

The "Together for Life" Classroom Calendar is a multi-purpose educational tool for students and teachers in grades 6-10. The three main objectives of the calendar are to:

- Increase awareness of the benefits people and animals receive from medical research using animals;
- Pique curiosity about current issues within the biomedical research field; and
- Teach students more about laboratory animals and the magnificent contributions they make to our lives.

Special features of this "Together for Life" Classroom Calendar include:

- An 18-month calendar for everyday use within the classroom;
- Eye-catching, colorful photos, educational facts, and unique trivia about the use of animals in research and the benefits of research to people and animals;
- Reproducible classroom and homework activities directly relating to laboratory animal science and correlated to national educational standards;
- A list of ideas for reinforcement activities students may do for extra credit or as special assignments that encourage critical thinking skills, involvement in the community, and group participation;
- A list of informational and educational resources for teachers and students; and
- A feedback form for sharing opinions about the product and suggestions for improving future editions.

How to Use

Poster Front: The front of this poster is designed to provide students with a wealth of facts and fun information about the use of animals in biomedical research and how this research affects their daily lives. An added perk is the classroom calendar!

Poster Back: The back of this poster, divided into six 8-1/2" x 11" sections, is designed for teacher use and is ready for photocopying as needed. **It is suggested that teachers make photocopies of all sections prior to laminating or hanging the poster in their classroom.** Contents include:

- Introduction and Request for Feedback
- "Lab Animal Sort 'n Match" Activity
- Research Rousers
- Teacher Instructions for Activities
- "Name that Animal Caregiver" Activity
- Laboratory Animal Science Resources

Send Us Feedback

Your candid feedback on this product is needed. Your input is important and will be used to help us improve the content and quality of this product for future printings. Please take a few minutes to complete the following and return it to us, using the address below. Thank you.

Please rate the following, using the rating scale provided:

1 = Poor 2 = Below Average 3 = Average 4 = Above Average 5 = Excellent

	<u>RATING</u>	<u>COMMENTS</u>
1. Overall value	1 2 3 4 5	_____
2. Accuracy of content	1 2 3 4 5	_____
3. Relevancy of content to your needs	1 2 3 4 5	_____
4. Quality of materials	1 2 3 4 5	_____
5. Likelihood you will use contents	1 2 3 4 5	_____

Topics for future editions / Ideas for improvement / Additional comments: _____

Optional: If you would like more information about lab animal care or the need for animals in biomedical research, please enter your contact information below:

Name: _____

School: _____

Address: _____

City/State/Zip: _____

Phone: _____ Email: _____

Co-Funded by:



<http://www.millennium.com>

Research Rousers!

Integrating laboratory animal science into classroom activities can be easy and fun with these Research Rousers. These activities may be assigned as extra credit, classroom time-fillers, group projects, homework, field trips, or even as rewards. Browse through the list of activities and decide which one(s) to share with your students. You may select activities based on your schedule and/or curriculum topic.

Class-oriented Activities (teacher-guided):

- Do a classroom brainstorming session on this question: What would happen if scientists could create a virus or other agent that would prevent HIV (or other serious illness) and would be passed on to humans through the bite of a mosquito? What are the benefits? The problems? Could this really happen someday soon?
- Have each member of the class discuss how he or she is “directly” impacted by benefits of biomedical research every day. What about the “indirect” impacts of research? Some topics to get discussion started might include: not worrying about contracting polio, knowing her dentist will use anesthetics to do dental work, or knowing his dog can take medicines to safely rid it of fleas.
- Profile and feature a “laboratory animal of the week.” Give clues about its identity each day. The student who identifies the lab animal is the winner. Some suggested species: rats, mice, pigs, rabbits, sheep, guinea pigs, hamsters, frogs, ferrets, or fish.
- Have students compile a list of movies they have seen that show or describe animals used in research in one way or another. As a class, talk about their impressions of each movie’s message. What were the movies trying to say about the use of animals in research? Ask the students whether or not they agree and then discuss why.
- Go around the room and have each student complete this sentence: “If I were a biomedical researcher, I’d find a cure or treatment for _____.” Each student should try to name a different disease or medical condition found in either humans or animals.
- Give groups of students a newspaper or scientific magazine/journal and have them cut out articles/photos of articles or other features that shows how biomedical research with animals affects their lives. Have the students mount their items and then create a bulletin board from all the articles gathered. Discussion of these makes great time fillers! Note: Availability of relevant articles will vary.
- List a variety of laboratory animal species (mice, rats, dogs, sheep, snakes, etc.). Have students (or groups) do taxonomic classifications on each animal. Describe how the features/characteristics of each animal fits into that classification. As a class, discuss how some of these features might be important from a research aspect.
- Lead a discussion on ethics. What is ethics? Discuss some of the current ethical situations in the news? Have the students ever had to make an ethical decision? If so, what? Discuss the ethics relating to the use of animals in biomedical research, product safety testing, or cosmetic testing. Great resources can be found at www.nwabr.org/education/ethicslessons.html.

Project Activities:

- Discuss why the vast majority of the animals used in research are rodents such as mice and rats.
- Compare and contrast: keeping pets outdoors in Hawaii in the summer versus outdoors in Alaska in the winter.
- Have the students pretend they are a doctor in the 1800s. What might their job have been like? What types of equipment, instruments, and resources might they have had? What were some of the conditions they might have treated? What would have happened if someone had a broken arm? A bad tooth infection? A heart attack? Discuss what the differences might be between a doctor living then and one living today. This can be done as a classroom discussion or as individual research projects.
- Assign each student a special area of medicine to research. Some suggested topics include: vaccines, anesthetics, x-rays, antibiotics, open heart surgery, sterility and cleanliness at hospitals, stethoscopes, MRI, pain relief, fracture repair, or dental cavities.
- Why throughout time have we made sayings based on various animals (ex: busy as a bee)? Write down as many of these sayings as you can think of. Then, write/describe why you think the saying was started and what makes it true or not. Some suggestions include: stubborn as a ..., eats like a ..., crazy as a ..., wild as a ..., fat as a ..., grumpy as a ..., and mean as a
- Create a poster on how research has benefited farm animals or zoo animals.
- Visit the website of the American Association for Laboratory Animal Science (www.aalas.org). What is AALAS’ role in the research arena?

Home Activities:

- Create homemade gifts or cards and either take or send them to children at a local children’s hospital. Note: Seek permission from local hospital administrations before beginning this project. Some may not allow gifts.
- With your parents, volunteer to walk dogs and play with cats at a local animal shelter. Note: Verify age requirements and releases needed in your area.
- Draw or paint a picture of your pet and take it to your veterinarian to post on his/her wall.
- While together at dinner one night with your family, bring up a discussion about the need for animals in research. How do your feelings about the topic differ from the others in your family?



Name that Animal Caregiver!

Here's your chance to "play detective" and use logic to correctly identify five laboratory animals technicians that work at XYZ Research Facility. The clues and the chart below will help you determine each technician's name, the age of each technician, the color of their scrub uniforms, the type of animal each cares for, and the tech's favorite hobby.

Details you need to know about the lab animal technicians:

- **Technician names:** Chris, Jill, John, Linda, and Sheryl
- **Ages:** 19, 24, 29, 37, and 45.
- **Scrub uniform colors:** blue, green, purple, red, and tan.
- **Animals in their care:** cats, goats, mice, rabbits, and rats
- **Hobbies outside of work:** fishing, golfing, painting, sewing, and swimming.

All have important jobs taking care of laboratory animals that are used in medical research at their facility. One works with mice in a study searching for a cure for childhood cancer; one cares for rats that are being used to find a new treatment for diabetes; another takes care of rabbits that are used for finding new treatments for high blood pressure; one works with goats that are a model for knee replacement; and the other cares for cats that are helping find treatments for spinal cord injuries.

- The youngest technician has the rat room.
- The painter has the blue scrubs.
- Jill is the oldest technician and works with the cats.
- The swimmer is the younger sister of the painter and they're ten years apart.
- John takes care of the rabbits and is older than Chris.
- The 45-year-old wears the purple scrubs and plays golf every Friday afternoon after work.
- Linda has brown eyes and wears green scrubs.
- The person with the red scrubs is making a new shirt at home and is the second youngest technician.
- Chris is 24, and has a dog named Max.
- The 29-year-old works with the mice and sings at weddings.
- The 37-year-old heads for the lake the first weekend that fishing season opens.

Use the clues above to fill in the information about each technician below:

Name					
Age					
Scrub Color					
Animal					
Hobby					

Lab Animal Sort 'n Match Activity

Instructions: Provided below is a chart of 20 topics relating to the field of laboratory animal science. Using the items (words or word phrases) below the chart, list three (3) in the spaces provided that represent each topic. Be aware that some items may relate to more than one topic, but only one final arrangement of the items will be correct. All items will be used to complete the chart, but each item will be used only once.

	Topic	Item 1	Item 2	Item 3
1	Rodents			
2	Parasites			
3	Daily job duties of a laboratory animal technician			
4	Reptiles			
5	Inside the body			
6	Items needed in a mouse cage to keep the animals healthy			
7	Laboratory tools			
8	Safety equipment			
9	Nonhuman primates			
10	Careers in research			
11	Amphibians			
12	Pests			
13	Birds			
14	Sharp items			
15	Ruminants			
16	Three extents of cleanliness			
17	Products from which animal bedding is made			
18	Nutrients			
19	Organ systems			
20	Provides regulatory guidelines for biomedical research			

- | | | | |
|---|--|--|---|
| <input type="checkbox"/> Bedding
<input type="checkbox"/> Salamander
<input type="checkbox"/> Corn cobs
<input type="checkbox"/> Cow
<input type="checkbox"/> Scissors
<input type="checkbox"/> Fleas
<input type="checkbox"/> Frog
<input type="checkbox"/> Quail
<input type="checkbox"/> Lungs
<input type="checkbox"/> Veterinarian
<input type="checkbox"/> Mouse
<input type="checkbox"/> Mites
<input type="checkbox"/> Protein
<input type="checkbox"/> Public Health Service
<input type="checkbox"/> Vitamins | <input type="checkbox"/> Wood shavings
<input type="checkbox"/> Flies
<input type="checkbox"/> Pancreas
<input type="checkbox"/> Disinfection
<input type="checkbox"/> Squirrel Monkey
<input type="checkbox"/> National Institutes of Health
<input type="checkbox"/> Ear plugs
<input type="checkbox"/> Snake
<input type="checkbox"/> Scales
<input type="checkbox"/> Chicken
<input type="checkbox"/> Turtle
<input type="checkbox"/> Goat
<input type="checkbox"/> Recordkeeping
<input type="checkbox"/> Claws
<input type="checkbox"/> Health observation | <input type="checkbox"/> Water
<input type="checkbox"/> Muscular
<input type="checkbox"/> Gloves
<input type="checkbox"/> Rat
<input type="checkbox"/> Circulatory
<input type="checkbox"/> Hamster
<input type="checkbox"/> Checking room temperature
<input type="checkbox"/> Teeth
<input type="checkbox"/> Lab Animal Technician
<input type="checkbox"/> Spiders
<input type="checkbox"/> Ticks
<input type="checkbox"/> Sterilization
<input type="checkbox"/> Rhesus monkey
<input type="checkbox"/> Bladder
<input type="checkbox"/> Paper | <input type="checkbox"/> U. S. Dept of Agriculture
<input type="checkbox"/> Cagewasher
<input type="checkbox"/> Cockroaches
<input type="checkbox"/> Goggles
<input type="checkbox"/> Microscope
<input type="checkbox"/> Carbohydrates
<input type="checkbox"/> Sanitation
<input type="checkbox"/> Endocrine
<input type="checkbox"/> Lizard
<input type="checkbox"/> Marmoset
<input type="checkbox"/> Food
<input type="checkbox"/> Toad
<input type="checkbox"/> Pigeon
<input type="checkbox"/> Petri dish
<input type="checkbox"/> Sheep |
|---|--|--|---|

Teacher Guidelines for Classroom Activities

General: The two activities in the center section above are designed to be photocopied and given out to students as classroom, homework, or extra credit activities. For connections to national educational standards for each activity, visit the “Together for Life” link in the “Teacher” section of our educational websites: www.kids4research.org and www.teens4research.org.

“Name That Animal Caregiver” Teacher Guidelines – This logic puzzle activity introduces students to the roles of laboratory animal technicians in the biomedical research field while stimulating their critical thinking and reasoning skills. Note: This logic problem may be rather challenging to students who have not been exposed to logic problems before.

Answers to “Name That Animal Caregiver” activity:

Name	Linda	Chris	Sheryl	John	Jill
Age	19	24	29	37	45
Scrub Color	Green	Red	Blue	Tan	Purple
Animal	Rats	Goats	Mice	Rabbits	cats
Hobby	Swimming	Sewing	Painting	Fishing	Golfing

Further reinforcement:

- Spend time discussing “logic” with your students. Some things to get you started include: “What is logic? Have them define it in their own words and then look it up in a dictionary. Discuss what is meant by a “logical” vs. “illogical” sequence of events. An example might include the steps to brushing one’s teeth; What sequence of steps is logical and which is not? Discuss how logic can be used in their lives at home and at school.
- Have students visit www.kids4research.org to learn more about how the animal species listed in this activity are needed in medical research.

“Lab Animal Sort ‘n Match” Teacher Guidelines – This challenging, yet fun, activity will introduce your students to the many aspects of laboratory animal science and biomedical research. Younger students may not be familiar with some of the topics provided. If so, the teacher will have to either provide a description of the topics or use defining the topics as part of the preparations for the activity.

Answers to “Lab Animal Sort ‘n Match” activity:

	Topic	Item 1	Item 2	Item 3
1	Rodents	Mouse	Hamster	Rat
2	Parasites	Fleas	Ticks	Mites
3	Daily job requirements of a lab animal technician	Health observation	Recordkeeping	Checking room temperature
4	Reptiles	Snake	Turtle	Lizard
5	Inside the body	Lungs	Pancreas	Bladder
6	Items needed in a mouse cage to keep the animals healthy	Bedding	Food	Water
7	Laboratory tools	Microscope	Scales	Petri dish
8	Safety equipment	Goggles	Ear plugs	Gloves
9	Nonhuman primates	Squirrel Monkey	Marmoset	Rhesus monkey
10	Careers in Research	Veterinarian	Lab Animal Technician	Cagewasher
11	Amphibians	Frog	Salamander	Toad
12	Pests	Cockroaches	Flies	Spiders
13	Birds	Pigeon	Chicken	Quail
14	Sharp items	Teeth	Claws	Scissors
15	Ruminants	Cow	Sheep	Goat
16	Three extents of cleanliness	Sanitation	Disinfection	Sterilization
17	Products from which animal bedding is made	Corn cobs	Paper	Wood shavings
18	Nutrients	Protein	Carbohydrates	Vitamins
19	Organ systems	Endocrine	Muscular	Circulatory
20	Provides regulatory guidelines for biomedical research	Public Health Service	United States Department of Agriculture	National Institutes of Health

Further reinforcement:

- Select one or more of the topics provided that relate to subject matter already covered in class. Have students list even more items that would fit the category. Another option would be to have students create a colorful poster about their topic.
- Ask groups of students to write up the full taxonomic classification of some of the animals listed on the chart once completed. Have them list and explain characteristics common to each Class or Order of animal.

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Supplemental Resources

The following websites can be used to supplement the content on the front of this poster:

Links Disclaimer: These references are offered as educational resources. AALAS does not maintain these sites and is not responsible for information contained therein or the availability of these sites now or in the future.

"Who are Laboratory Animal Technicians and why should you care?"

- www.kids4research.org/careers.html
- www.prospects.ac.uk/links/AnimalLabTech
- www.animaledu.com/main/enrichment.htm

If a Woodchuck Could Chuck Wood?

- www.news.cornell.edu/Chronicle/96/2.1.96/groundhog.html
- www.pirweb.org/html/hm04b_woodchuck.htm
- http://animaldiversity.ummz.umich.edu/site/accounts/information/Marmota_monax.html
- www.news.cornell.edu/chronicle/97/1.30.97/groundhog_research.html

"The Rainforest – A Source of Medical Breakthroughs"

- http://cis.nci.nih.gov/fact/pdfdraft/7_therap/fs7_33.pdf
- http://www.rainforest-alliance.org/resources.cfm?id=daily_lives
- <http://rain-tree.com>
- www.ran.org/info_center/factsheets/05f.html

A Little Birdie Told Me....

- www.spah.com/usa/poultry
- www.poultryscience.org
- <http://netvet.wustl.edu/birds.htm>

"Chocolate Labs and Chocolate Chips Don't Mix"

- www.vet.purdue.edu/vth/SACP/chocolate_toxicity.htm
- <http://vetmedicine.about.com/cs/nutritiondogs/a/chocolatetoxici.htm>
- www.jlhweb.net/Boxermap/chocolate.html

"Oh, Yuck! They eat what?"

- www.vetinfo.com/dencyclopedia/decoprophagia.html
- www.anapsid.org/coproph.html
- www.animalalliances.com/behavior/dogs/coprophagy.html
- www.peteducation.com/article.cfm?cls=18&cat=1800&articleid=2932
- www.thepetprofessor.com/articles/article.aspx?id=111

Gerbils and Epilepsy

- www.lvma.org/gerbil.html
- www.ninds.nih.gov/disorders/epilepsy/epilepsy.htm
- www.nlm.nih.gov/medlineplus/epilepsy.html

"Hamsters"

- www.ahc.umn.edu/rar/MNAALAS/Hamsters.html
- www.afirma.org/hamster.htm
- <http://netvet.wustl.edu/species/hamsters/hamsterbio.txt>

"The 3 Rs of Research + One More"

- <http://caat.jhsph.edu/pubs/articles/3r.htm>
- www.nc3rs.org.uk/page.asp?id=7
- http://altweb.jhsph.edu/publications/humane_exp/het-toc.htm

Pigs (Latin name = *Sus scrofa*)

- <http://netvet.wustl.edu/species/pigs/pigmodel.txt>
- www4.ncsu.edu/~jherkert/ori/pig.htm
- www.iacuc.arizona.edu/training/swine/pigs.html

"What is an IACUC?"

- www.iacuc.org
- www.nal.usda.gov/awic/legislat/awabrief.htm#Q15

For more resources, visit the link to this poster and the "Teacher" section of our educational website:



www.kids4research.org

Biomedical Research Advocacy Resources

- AAALAC International (AAALAC)
www.aaalac.org
- Amer. Assn. for the Advancement of Science (AAAS)
www.aaas.org
- American Physiological Society (APS)
www.the-aps.org/education/edu_k12.htm
- American Veterinary Medical Association (AVMA)
www.avma.org, www.avmaaux.org
- Americans for Medical Progress Educational Foundation (AMP)
www.amprogress.org
- Centers for Disease Control and Prevention (CDC)
www.cdc.gov
- Elizabeth R. Griffin Research Foundation
www.ergriffinresearch.org
- Federation of American Societies for Experimental Biology (FASEB)
www.faseb.org
- Foundation for Biomedical Research (FBR)
www.fbresearch.org
- Institute for Animal Technology (IAT)
www.iat.org.uk
- Institute for Laboratory Animal Research (ILAR)
<http://dels.nas.edu/ilar>
- International Council for Lab Animal Science (ICLAS)
www.iclas.org
- Johns Hopkins Ctr for Alternatives to Animal Testing (CAAT)
<http://caat.jhsph.edu>
- Medical Mouse
www.medicalmouse.org.uk
- National Institutes of Health (NIH)
www.nih.gov
- National Institute of Health Office of Science Education
<http://science-education.nih.gov>
- NetVet and Electronic Zoo
<http://netvet.wustl.edu>
- Public Responsibility in Medicine and Research (PRIM&R)
www.primr.org
- Research!America
www.researchamerica.org
- Royal Defense Society (RDS)
www.rds-online.org.uk
- Scientists Center for Animal Welfare (SCAW)
www.scaw.com
- Society for Neuroscience (SfN)
www.sfn.org
- Society of Toxicology (SOT)
www.toxicology.org
- States United for Biomedical Research (SUBR)
Links to state research advocacy organizations
www.statesforbiomed.org
- US Dept. of Agriculture/APHIS/Animal Care
www.aphis.usda.gov/ac