

BIOLOGY II: WORMS, BEANS, GERMS, AND GENES!

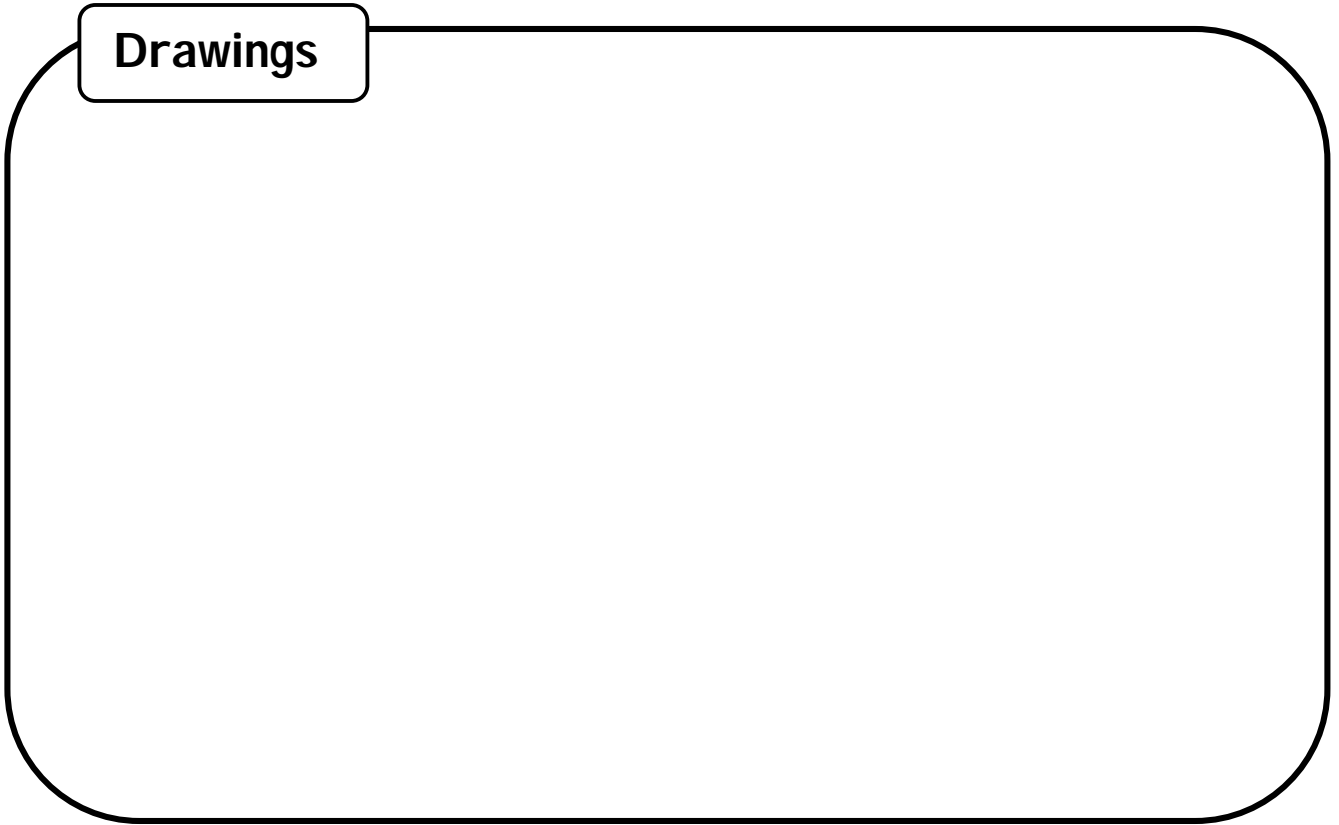
INSTRUCTOR'S GUIDE

Dr. Randy Pritchard

Reproducible Pages

Science Notebook Page
Lab Notebook Page

Drawings



Reading Notes

Definitions

Date _____

Experiment Name _____

**What have you learned about this subject?
(observation/research)**

**What question are you trying to answer?
(question)**

**What things do you need?
(materials)**

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

What will you do to answer the question? (experiment/test)

What do you think will happen? (hypothesis/prediction)

What happened? (results)

Why do you think this happened? (conclusion)

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Weekly
Reading and Assignment
Schedule

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Book List

Usborne Internet-linked Science Encyclopedia
Usborne Internet-linked Complete Book of the Microscope
Usborne Internet-linked Mysteries and Marvels of Nature
The Body Book

Equipment and Experiment Kits

Illumax 100X Slide Microscope and slides

***The Young Scientists Club* kits:**

- **Kit #28 Owls**
- **Kit #29 Eggs**
- **Kit #30 Seeds, Fruits, and Other Plant Parts**

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The following is a complete list of items that will be used for the required experiments over the entire 36-week course. This list includes many items that are common in most homes. The list does not include the items that are provided in *The Young Scientists Club* kits.

Master Supply List	
Item needed:	Week(s) used:
Sugar	2
Paper (paper towel, magazine, colored)	2, 13
Adhesive bandage (e.g. Band-Aid [®])	2
Piece of cardboard	4, 27
Scalpel or sharp knife (adult supervision)	4, 30, 32
Crayons or colored pencils	8, 25, 26, 27, 28, 29
Eggs (at least 2 raw and 2 hard-boiled)	13
Salt	13
Wide-necked bottle (egg-sized opening)	13
Food coloring	13, 32
2 jars with lids	13
Matches (adult supervision required)	13
Baking soda	13
Light source (e.g. desk lamp)	13
Flashlight	13
2-liter plastic bottle with cap	13
Feather	14
Scissors	20, 25, 26, 27, 28, 29
Glue	20, 25, 26, 27, 28, 29
Newspaper	20
Bleach	20
Paper towel	20
2 cups	20
Cotton swabs	24
Tape	25, 26, 27, 28, 29
Plastic wrap	25
Brads	27
Mirror	27
String	28
Empty paper towel tube	28
Onion	30
Celery	32
Variety of leaves	33
Flowers with stems (1 or more types)	34
Variety of fruits and vegetables	35
Garlic clove	35
Large glass jar (e.g. pasta sauce jar)	35
Ruler	35
Mushroom	36
Pond or lake water (optional)	36

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Week 1 – Microscopic World				
	Day 1	Day 2	Day 3	Day 4
Usborne Complete Book of the Microscope	Pp. 79-81	Pp. 82-84	Pp. 5-7	Pp. 8-9
Experiment	Optional: Make a Waterscope Pg. 81			
Optional: Internet Links	Microscope Pp. 80-81 ** see note below	Microscope Pp. 83-84	Microscope Pg. 7	Microscope Pp. 8-9

NOTE: See page 4 of *The Usborne Complete Book of the Microscope* for information about the optional Internet links.

Supply List: none required

Assignments:

Day 1 – read the assigned pages, summarize and/or sketch what you learned in your science notebook. Define **cell** using the *Usborne Complete Book of the Microscope* glossary.

Day 2 – read the assigned pages, summarize and/or sketch what you learned in your science notebook. Define **germs, bacteria, and virus** using the *Usborne Complete Book of the Microscope* glossary.

Day 3 – read the assigned pages, summarize and/or sketch what you learned in your science notebook. Define **atom** and **pollen** using the *Usborne Complete Book of the Microscope* glossary.

Day 4 – read the assigned pages, summarize and/or sketch what you learned in your science notebook. Define **optical microscope** and **electron microscope** using the *Usborne Complete Book of the Microscope* glossary.

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Week 2 – Microscopic World				
	Day 1	Day 2	Day 3	Day 4
Usborne Complete Book of the Microscope	Pp. 10-11	Pp. 12-13	Pp. 14-15	Pp. 16-17
Experiment	Microscope Pg. 11	Microscope Pg. 13		Microscope Pp. 16
Optional: Internet Links	Microscope Pg. 11	Microscope Pg. 12	Microscope Pg. 15	Microscope Pg. 17

Supply List: Illumax 100X Slide Microscope and slides, sugar, various kinds of paper (paper towel, magazine pages, colored paper, etc.), adhesive bandage (e.g. Band-Aid®)

Assignments:

Day 1 – read the assigned pages, summarize and/or sketch what you learned in your science notebook. Set up your microscope and view the sugar crystals. Move the focus knob up and down very gently for depth of vision. Sketch what you see. You may also want to look at other small objects with your microscope.

Day 2 – read the assigned pages, summarize and/or sketch what you learned in your science notebook. Set up your microscope and view various kinds of paper (NOTE: paper is viewed best along a torn edge). Sketch what you see.

Day 3 – read the assigned pages, summarize and/or sketch what you learned in your science notebook.

Day 4 – read the assigned pages, summarize and/or sketch what you learned in your science notebook. Remove the protective netting from above the gauze pad of an adhesive bandage. View the netting with your microscope and sketch what you see.