

Grade 8 Lab Notebook
Science in Action 8

Index of Investigations, Challenges and Activities

Cells and Systems

Investigations	Activity	Title	Page Ref.
Give It A Try		Piecing Together The Body	83
1.0 Living things share certain characteristics and have structures to perform functions.			
Give It A Try		Dead or Alive?	85
Give It A Try		Misinterpreting The Evidence	87
Give It A Try		Which Structure for What Function?	89
Give It A Try		Drawing Systems	93
2.0 Cells play a vital role in living things.			
Give It A Try		How Small Can It Be?	99
Give It A Try		Trying Out A Microscope	102
Inquiry	B-1	Comparing Plant and Animal Cells	104-105
Give It A Try		Testing Your Wet Mount	107
Inquiry	B-2	Observing unicellular Organisms	112-113
Give It A Try		Diffusion In Action	115
Inquiry	B-3	Effects of Different Solutions on Cells	117
Experiment on your Own	B-4	How To Stop The Wilt	118
3.0 Healthy human function depends on a variety of interacting and reacting systems.			
Give It A Try		A Taste Of Digestion	127
Give It A Try		What's In Your Breath?	132
Give It A Try		What Do You Know?	135
Inquiry	B-5	Changes In Heat Rate	138
Give It A Try		The Sight of Blood	139
Give It A Try		Where Does It Go?	141
Inquiry	B-6	Testing Artificial Urine	144
Inquiry	B-7	A Soft Touch	150
Try This at Home		Cells in 3-D	152
4.0 Scientific Knowledge leads to new knowledge about body systems and new medical applications.			
Inquiry	B-8	Tracking Down Disease	157
Give It A Try		Imitating Asthma	159
Decision Making	B-9	The Science of Health	160
SCIENCE WORLD			
Case Study Issue		Do Energy Bars Boost Performance?	166
Project			
End of Unit Project		What is Needed?	168

Give It A TRY **Piecing Together The Body** (p. 83)

Internal Body Parts	External Body Parts

How these body parts work together

Give It A TRY **Dead or Alive?** (p. 85)

Living	Non-living

- _____

- _____

Give It A TRY **Misinterpreting The Evidence** (p. 87)

How did Redi's experiment disprove *spontaneous generation*?

Give It A TRY **Which Structure For Which Function?** (p. 89)

	Dolphin	Tree	Beetle	Tiger
movement				
food gathering				

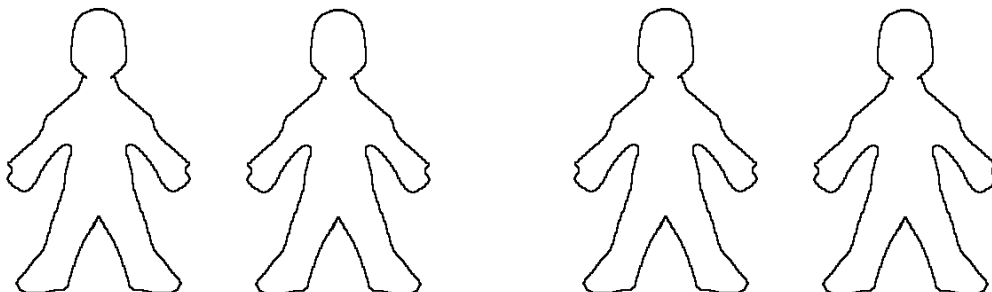
- _____

- _____

- _____

Give It A TRY **Drawing Systems** (p. 89)

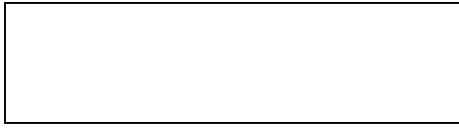
Go to this Internet web site for some support <http://users.tpg.com.au/users/amcgann/body/>



You may enlarge each of these on separate pieces of paper

Give It A TRY **How Small Can It Be?** (p. 99)

1 mm



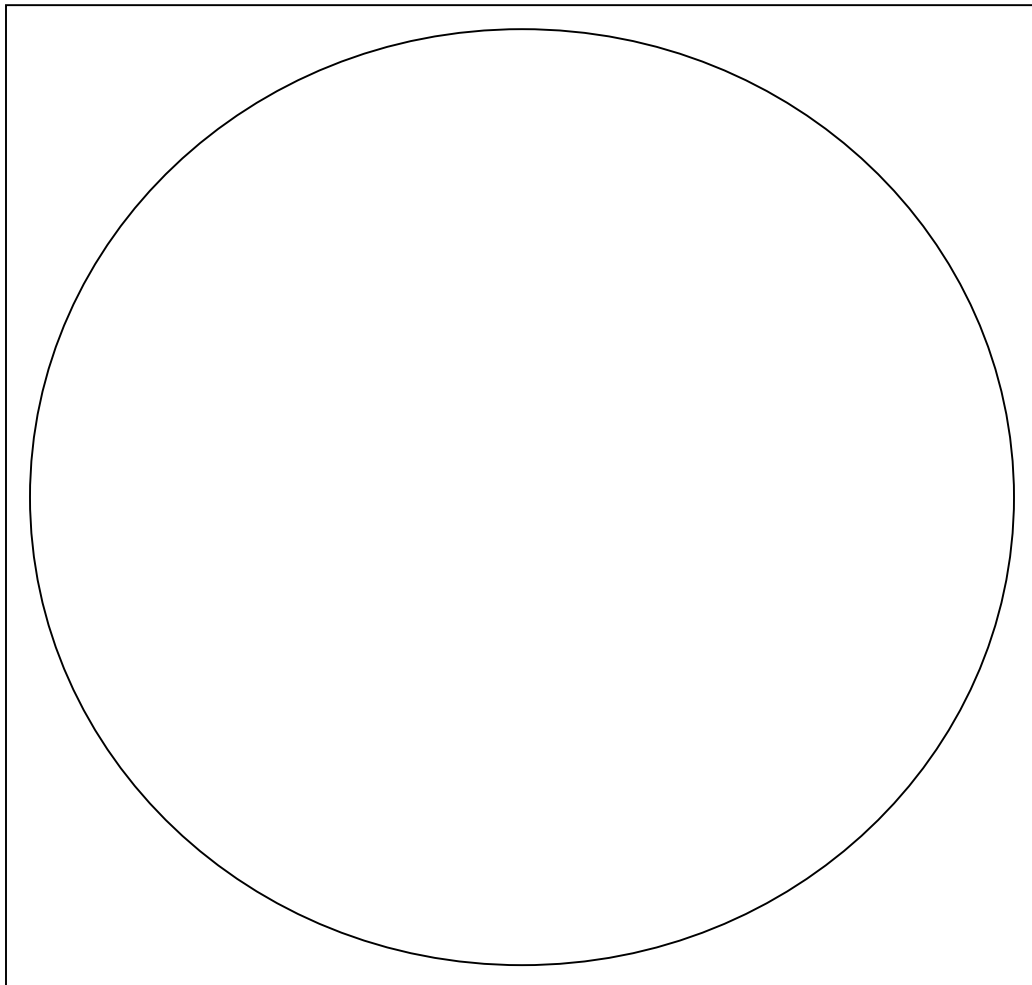
.5 mm



Organisms this small ...

Give It A TRY **Trying Out A Microscope** (p. 102)

Toolbox 11 – p. 439 (Science in Action 8)



Inquiry B-1

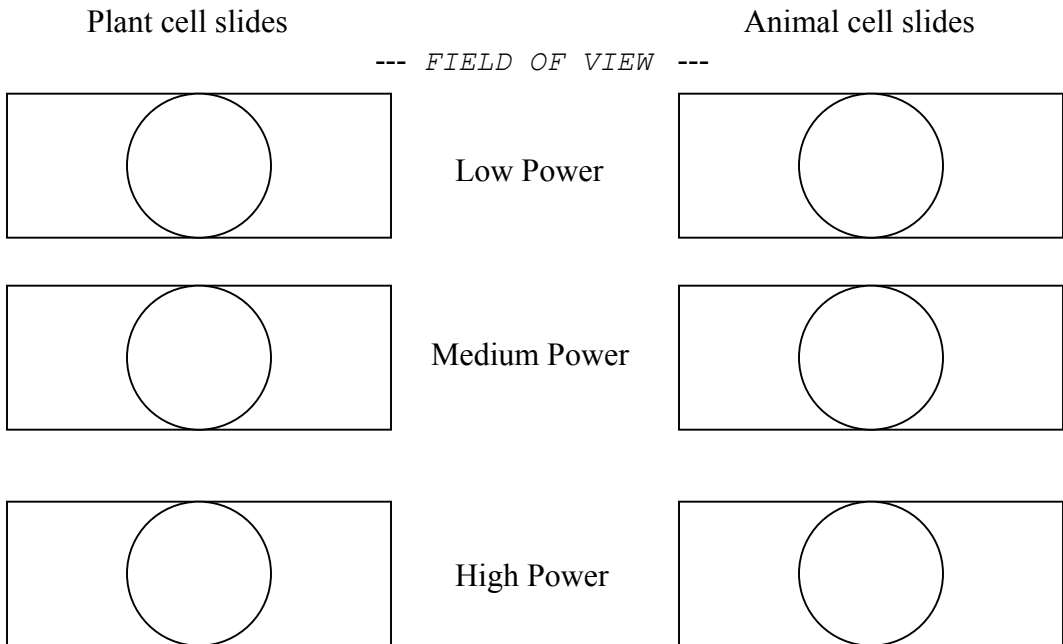
Comparing Plant and Animal Cells (p. 104-105)

Question: How are cells from different living things alike and how are they different?

Hypothesis: _____

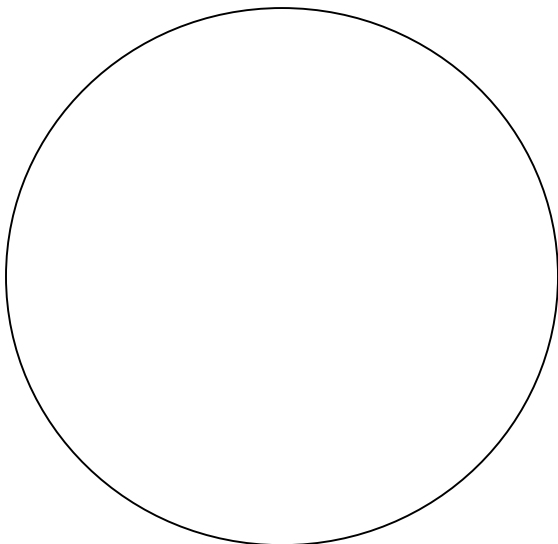
Materials and Procedure: (p. 104-105)

Data Collection:

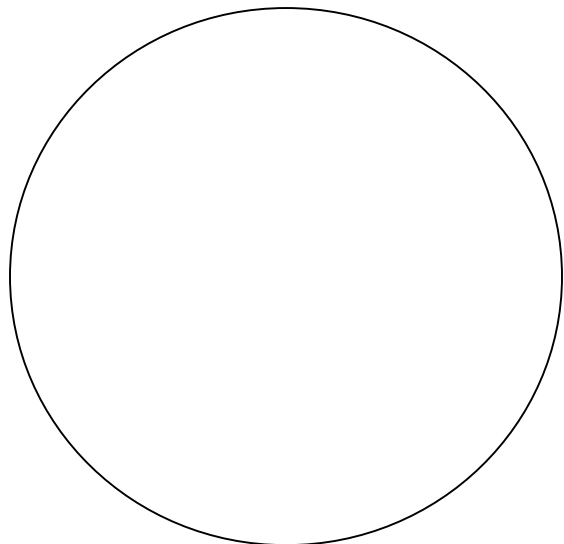


Collecting Data: 13. *Illustrations*

Typical Labeled Plant Cell



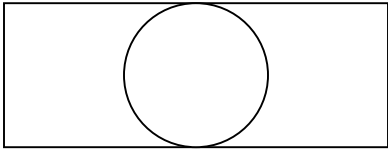
Typical Labeled Animal Cell



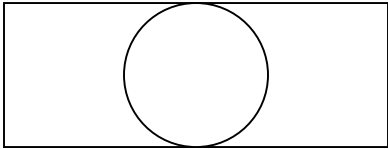
Give It A TRY Testing Your Wet Mount (p. 107)

Procedure – p. 106 (Science in Action 8)

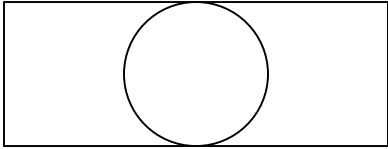
Predictions:



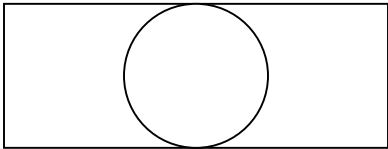
Low Power



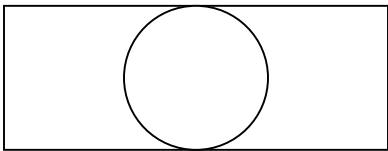
Left



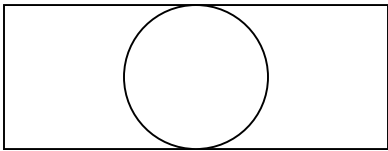
Right



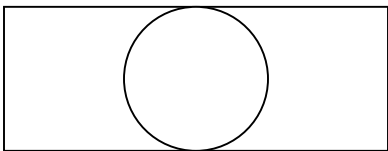
Up



Down

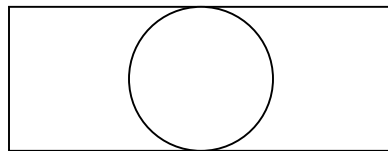
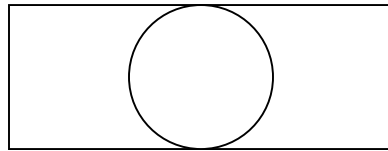
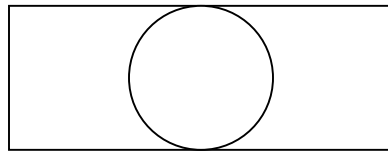
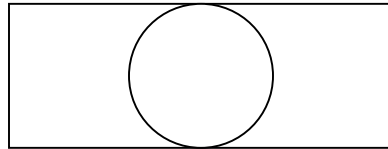
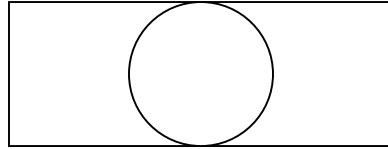
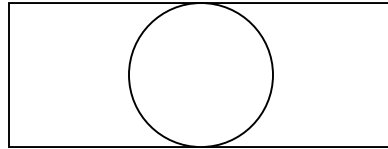
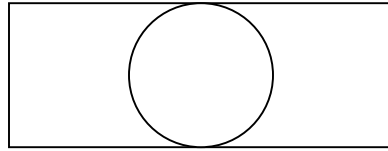


Medium Power

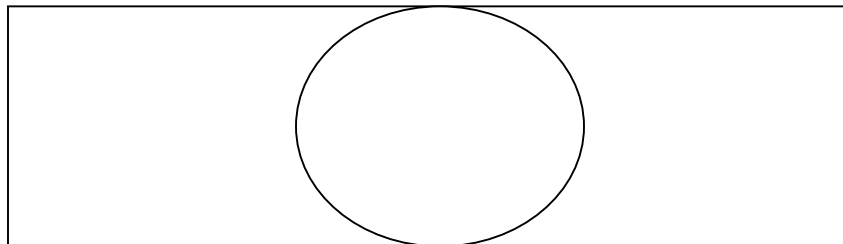


High Power

Observations:



Onion Skin



Inquiry B-2

Observing Unicellular Organisms (p. 112-113)

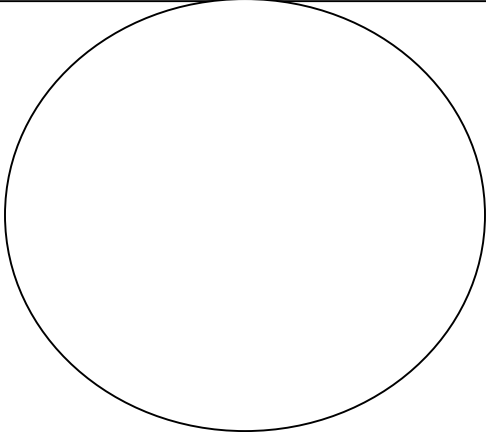
Question: What cell structures can be seen using a simple light microscope?

Hypothesis: _____

Materials and Procedure: (p. 112-113)

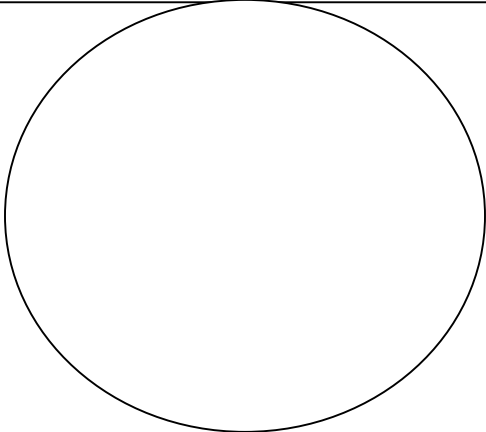
Data Collection:

low-power observation

Labeled diagram	
Shape _____	
Color _____	
Size _____	

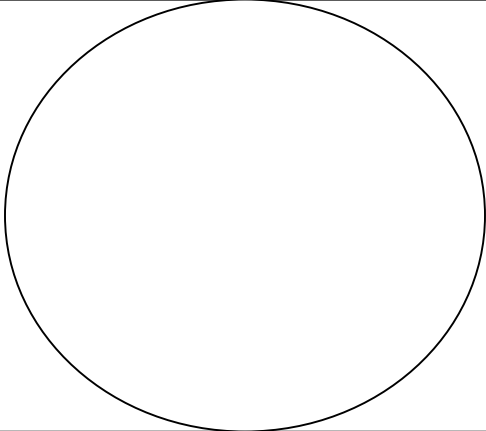
Observations (features and actions) _____

medium-power observation

Labeled diagram	
Shape _____	
Color _____	
Size _____	

Observations (features and actions) _____

high-power observation

Labeled diagram	
Shape _____	
Color _____	
Size _____	

Observations (features and actions) _____

Analyzing and Interpreting:

6. _____

7. a) _____

- b) _____

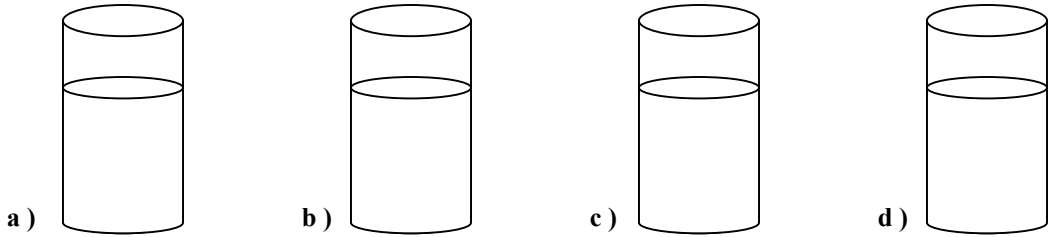
Forming Conclusions:

8. _____

Applying and Connecting: (p. 113)

Give It A TRY Diffusion In Action (p. 115)

Procedure – p. 115 (Science in Action 8)



- _____
- _____

Diffusion is _____

Inquiry B-3

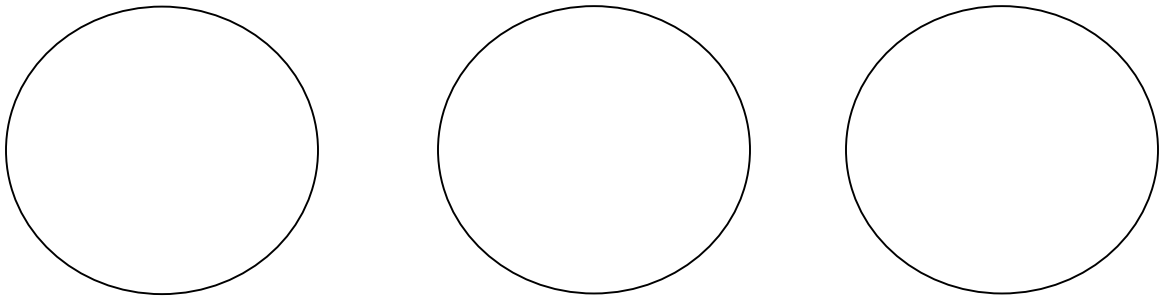
Effects Of Different Solutions On Cells (p. 117)

Question: How will a saltwater solution and pure water affect the appearance of a cell?

Hypothesis: _____

Materials and Procedure: (p. 117)

Data Collection:



Analyzing and Interpreting:

7. _____

Forming Conclusions:

8. _____

Applying and Connecting: (What causes the skin to 'water wrinkle'?)

Experiment On Your Own B-4

How To Stop The Wilt (p. 118)

Question: Which substance, technique, or both, will keep flowers from wilting for as long as possible?

Hypothesis: _____

Materials and Equipment needed: (p. 117)

Procedure:

- _____
- _____
- _____
- _____
- _____
- _____
- _____

Data Collection (Results) :

Conclusion: _____

Give It A TRY **A Taste of Digestion** (p. 127)

- _____

- _____

- _____

- _____

Give It A TRY **What's In Your Breath?** (p. 132)

- _____

- _____

- _____

- _____

Give It A TRY **What Do You Know?** (p. 135)

- _____

- _____

- _____

Inquiry B-5 Changes In Heart Rate (p. 138)

Question: Does your heart rate return to normal immediately after exercising?

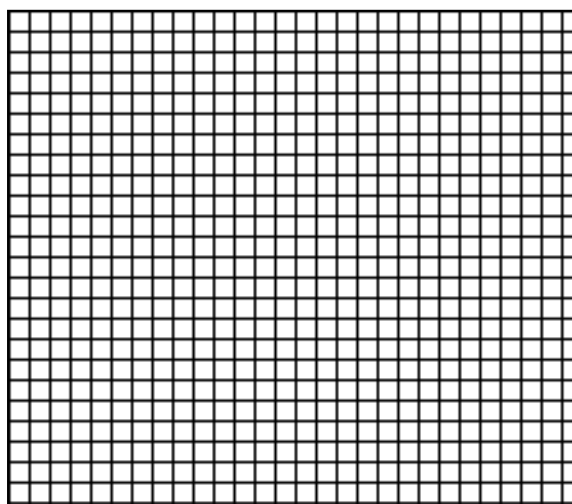
Hypothesis: _____

Procedure: (p. 138)

Data:

Heart Rate at Rest	After 5 min of exercise	1 min later	2 min later	3 min later	4 min later	5 min later

Analyzing and Interpreting: Graph of Results



Reason for using the graph type is _____

Forming Conclusions: 8. _____

9. _____

10. _____

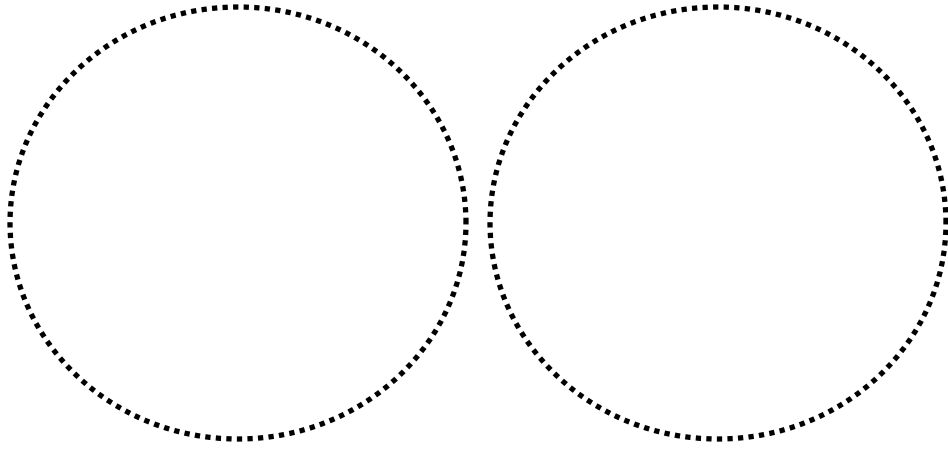
11. 1 min _____ 3 min _____

12. _____

13. _____

Applying and Connecting: _____

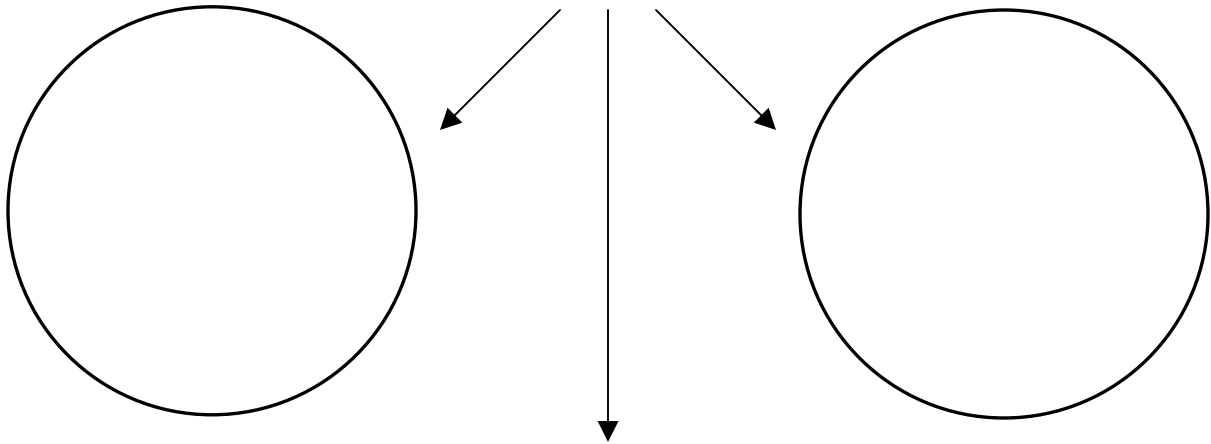
Give It A TRY **The Sight Of Blood** (p. 139)



Low power

High power

(Cell Types identified in slide)

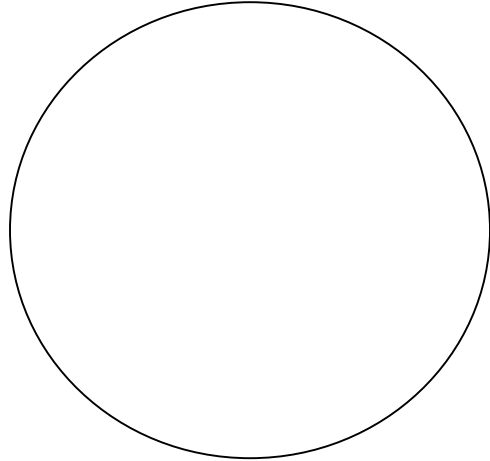


■ _____

Give It A TRY **Where Does It Go?** (p. 141)

■

- _____ sweat a) 0.5 L
- _____ urine and feces b) 0.8 L
- _____ breathed out air c) 1.2 L

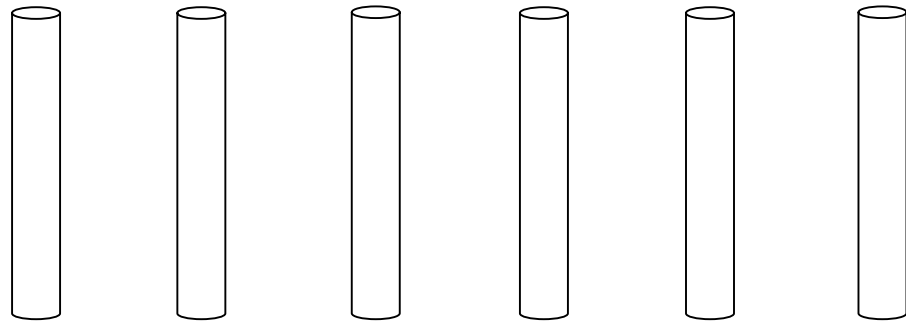


Inquiry B-6 Testing Artificial Urine (p. 144)

Question: Can we find out whether three fictitious patients have diabetes or kidney disease by testing their urine?

Hypothesis: _____

Procedure & Data Collection:



	water	glucose	protein	patient 1	patient 2	patient 3
--	-------	---------	---------	-----------	-----------	-----------

Glucose
Test
Protein
Test

Analyzing and Interpreting: 6. & 7. (Results recorded in table above)

Forming Conclusions:

8. Diabetes _____

Kidney Failure _____

9. _____

Inquiry B-6 A Soft Touch (p. 150)

Question: Are sensors distributed evenly over the surface of the body?

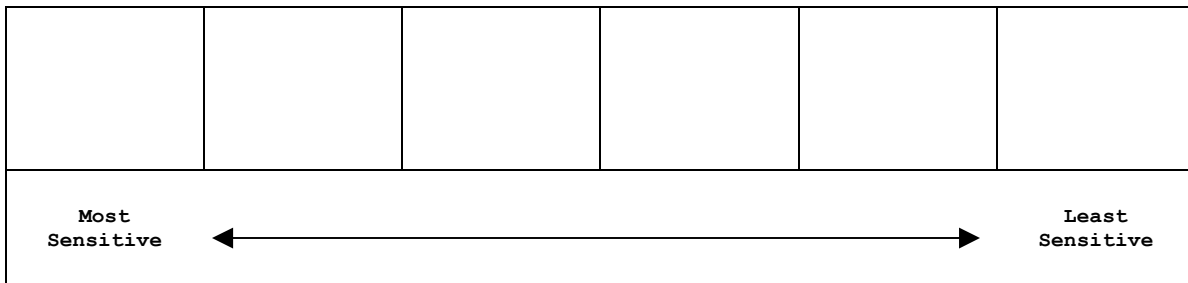
Hypothesis: _____

Procedure & Data Collection:

	Distance between points (mm)
fingertip	
center of palm	
back of hand	
inner forearm	
back of neck	
upper arm	
lower back	

Analyzing and Interpreting:

8.



Forming Conclusions:

9. _____

Applying and Connecting:

TRY This At HOME Cells In 3-D! (p. 152)

Why not make an **EDIBLE CELL** Model – After you have presented your model to the class and the teacher, you can EAT the evidence!

Inquiry B-7 Tracking Down Disease (p. 157)

Question: How difficult is it to find the source of a disease?

Hypothesis: _____

Procedure:

Collecting Data:



6. Partner _____

7. Partner 2 _____

Partner 3 _____

8. (Color your solution)

Analyzing and Interpreting:

9. _____ Infected Disease-free

10. _____

11. _____

Forming Conclusions:

8. _____

Give It A TRY Imitating Asthma (p. 159)

- _____

- _____

Decision Making Activity B-8 The Science Of Health (p. 160)

Issue: What is the best way to maintain the health of body systems?

Background Information: (p. 160)

1. Body System Chosen _____

2. a) Organs (key features and functions)

b) Supporting Body Systems

_____	_____
_____	_____
_____	_____

c) Scientific developments

d) How we have use our new understanding to improve/safeguard health

e) Helpful substances

Harmful substances

Support Your Opinion

4.

- ---
- ---

5.

- ---
- ---

SCIENCE  **WORLD**
Case Study

Do Energy Bars Boost Performance?