REFLECTION

What did you learn at the stream study?

_____

_____

_____

_____

What was your favorite part of the stream study trip?

_____

_____

_____

What could have been done to improve your experience at the stream study?

_____

_____

_____

Do you feel as though you were adequately prepared for the stream study activities? Yes / No

Support your opinion: _____

_____

_____

_____

Tear here

Tear here

Student		**Teacher**	
Neatness	A B C D	Neatness	A B C D
Completion	A B C D	Completion	A B C D
Content	A B C D	Content	A B C D

5TH GRADE STREAM STUDY DATA COLLECTION BOOKLET

Student Name: _____

Homeroom Teacher: _____

Science Teacher: _____

Date: _____

INFORMATION

Your Name: _____

Names of **people** in *your* group:

_____

_____

_____

_____

Your **chaperone**: _____

Your **station #**: _____ 

Look around your site. *List below* what you **see**. Place the item in the appropriate column.
Look for things like buildings, specific plants and animals, animal tracks, bridges, roads, etc.

Obvious		Hidden

GRADING AND EVALUATION

This is *your opportunity* to **evaluate yourself** and **group members** *based on the work completed* during the river study. It is not fair for a teacher to judge the amount and quality of work being done by the students if the teacher is not present. When completing this, you **must** be fair and honest, and **must give reasons** to *support your answer*. Remember, there is not a requirement to go into the water, but there is the expectation that **everyone** works equally and cooperatively.

Names of People in Your Group	Quality of Work	Effort in Work	Team Player ? (Y/N)	Comments
Your name:				

*Use **A, B, C, or D** scale in the columns "**Quality of Work**" and "**Effort in Work**." You may use + and – if you like. Base your grade on the expectations discussed during class. This grade should also include the evaluation and reflection of the work accomplished during the stream study. Be accurate and fair with your **grade** and **rationale**.* You may be questioned if there is a discrepancy in *grades.*

Reference:

PEBBLE SIZE and NOTE-TAKING

Size Class	Size Range (mm) diameter
Sand	less than 2
Very Fine Gravel	2 - 4
Fine Gravel	4 – 8
Medium Gravel	8 – 16
Coarse Gravel	16 – 32
Very Coarse Gravel	32 – 64
Small Cobble	64 – 90
Medium Cobble	90 – 128
Large Cobble	128 – 180
Very Large Cobble	180 – 256
Small Boulder	256 – 512
Medium Boulder	512 – 1024
Large Boulder	1024 – 2048
Very Large Boulder	2048 - 4096

Note-Taking:

SKETCH

Draw a ***quick***, but **detailed** sketch of your area.

Be sure to include some of the things observed on the previous page.

You may turn the booklet sideways for more room to sketch.

4 USING YOUR SENSES / TOOLS

Current **Air Temperature**: _____ °F

Time of Day: _____

Describe the **turbidity** of the water at your site.

clear *cloudy* *murky* *dark*

Other: _____

Color: _____

Secchi disk measurement: _____ cm

Describe the **scents** you *smell* at your site.

Scent	Possible Cause / Source
_____	_____
_____	_____
_____	_____
_____	_____

Estimate the **percent shade** at your site: _____ %

List the **causes** of *shade* at your site.

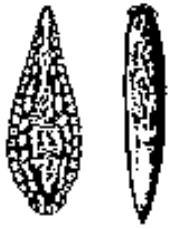
_____ _____

_____ _____

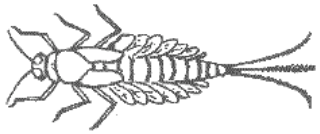
Test the *water's* **pH** at your site: _____

9 *Reference:* MORE MACRO PICS

Leech



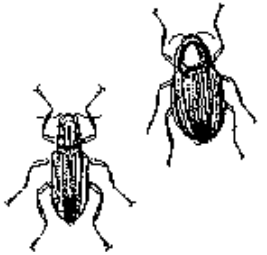
Mayfly



Midge

Mosquito larva

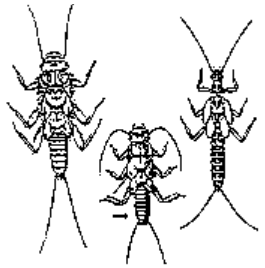
Riffle beetle



Scud

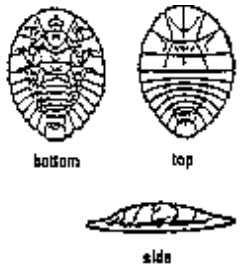
Snail

Stonefly

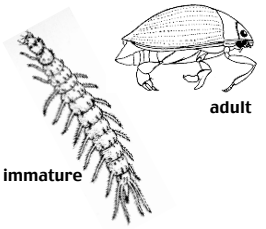


Water strider

Waterpenny



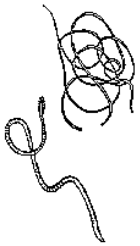
Whirligig beetle



Reference: MACRO PICS

Use these pictures to help in identifying the various macroinvertebrates possibly found in the water at your site. Keep in mind these pictures may not look **exactly** like your specimens – look carefully! Also remember the type of macroinvertebrates found will help determine the quality of the water.

Aquatic worm



Backswimmer

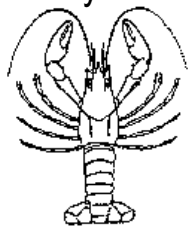
Blackfly larva

Boatman

Clam

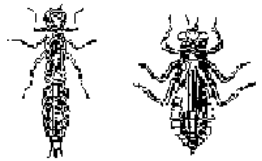
Cranefly

Crayfish



Dobsonfly

Dragonfly larva



TEST AREA MEASUREMENT

Record your data in the appropriate table below.

STREAM

Water Depth: _____ cm

Particle Size: _____ mm

Water Temp: _____ °F _____ °C

FLOW RATE

How many seconds did it take for the ping pong ball to float *3 meters*?

TOTAL: _____ *Seconds* (TIME)

How many **meters per second** did the ball float? *Hint:* # of meters ÷ # of seconds

Speed = (Flow rate) $\frac{\text{Distance}}{\text{Time}}$ $\frac{\textit{(meters)}}{\textit{(seconds)}}$

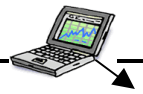
MACRO COLLECTION TALLY

Identify each macroinvertebrate found at your stream site using the reference pictures on **pages 8 & 9**.Place a tally mark in the appropriate row and column. Try to find *at least* **30** organisms.

Sensitivity to pollution scale:

VS	Very Sensitive
SS	Somewhat Sensitive
T / NS	Tolerant / Not Sensitive

Macroinvertebrate	Sensitivity	Tally Marks	Total
Backswimmer	VS		
Dobsonfly	VS		
Mayfly	VS		
Riffle beetle	VS		
Water penny	VS		
Clam	SS		
Cranefly larva	SS		
Crayfish	SS		
Dragonfly larva	SS		
Scud	SS		
Water strider	SS		
Whirligig beetle	SS		
Aquatic worm	T / NS		
Black fly larva	T / NS		
Boatman	T / NS		
Leech	T / NS		
Midgefly	T / NS		
Snail (lunged)	T / NS		
Other (not on list)			
TOTAL:			



Make a hypothesis: Based on your macroinvertebrate tally above. Is the water *healthy* or *unhealthy*?

CONCLUSIONS

Based on the data gathered during your stream study, determine if the water at your site is *healthy* or *unhealthy*. Be sure to **support your answer with your data**- use actual examples you recorded.