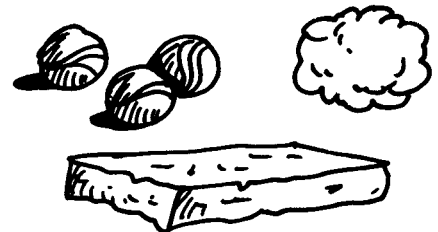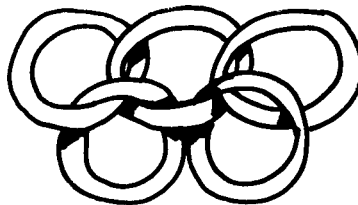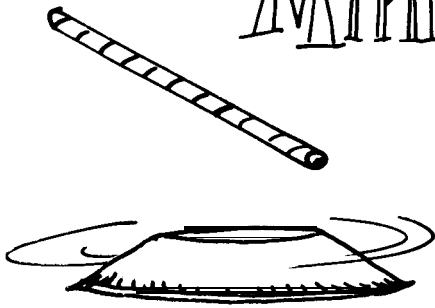# Mini Metric Olympics

I. Topic Area
Estimating and measuring in metric units.

II. Introductory Statement
Students will become familiar with metric units by estimating and measuring in a "Metric Olympic" setting.

III.

Math Skills	Science Processes
a. Measuring in Metric Units.	a. Estimating
	b. Predicting

IV. Materials (per class)
2-3 paper plates or pie pans
3-5 paper or plastic drinking straws
2 bags of marbles
3 meter sticks and meter tapes
cotton puff balls
large sponge
large mixing bowl or bucket
liter measuring set
centimeter graph paper
balance scale with weights
Student Worksheets

V. Key Question
"How closely can you match your estimate and your actual measurement in metric units?"

VII. Management Suggestions
1. Establish fair ground rules ahead of time.
2. Be consistent in guiding rules that determine fairness in measurement. For Example: Do I get a practice turn?
3. Measure to the nearest whole unit.
4. Teacher needs to announce when teams will rotate to the next station.
5. Estimated time to complete activity is two (2) fifty minute class periods.

VIII. Procedure
1. Work in small groups (5) including a team captain.
2. There are a total of six stations with a different task at each station. Each station should have a task card with complete instructions and materials available. Each group is assigned to one station.
3. Each captain may read the instructions to his team. It is extremely important that *before* each activity begins, each student estimates and records his/her estimate on his/her student score sheet. Captains should check all members on the team before beginning any activity.
4. After each team member performs the activity, he/she measures and records his/her actual length, mass, volume or area.

IX. What the Students Will Do
After all the stations have been completed by all teams, each student should find the score, which is the difference between the estimates and the actual measurement for each event. This should be entered in the last column. Then each student totals the numbers in the score column. The winner is the one with the lowest score. You may wish to discuss how a low score shows accuracy.

Awards may be presented to the winners. There are forms in the student worksheet section which may be duplicated for this purpose.
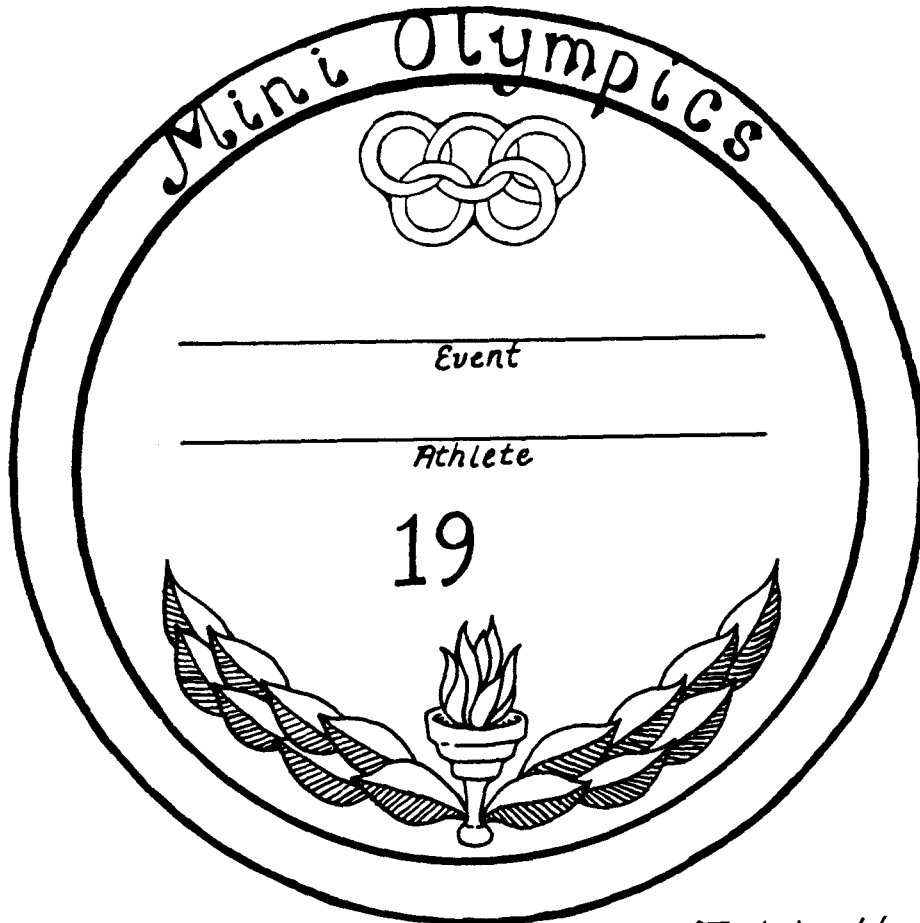
XI. Extension
You may wish to use one or both of the self-explanatory extended activities: Metric Scavenger Hunt or Mini-Metric Olympics II. Mini-Metric Olympics II requires the computation of percent of error and is appropriate for the upper grades.

Following are other investigations that require estimation and measurement:
a. How many liters of water will fill your bathtub? Draw a cartoon and record your data.
b. Select five or more containers of assorted sizes and shapes. Can you arrange them in order from least to greatest and predict their volume accurately? Make a diagram and table of your results.
c. Select five or more objects of various sizes and shapes. Can you arrange them from lightest to heaviest and estimate their mass accurately? Organize and illustrate your data.
d. Estimate the distance of a trip to school and back home in metric units. Draw a map to scale that illustrates how far you walk or ride to school. You may choose to do this with a partner and do a combined map so that you can make comparisons.
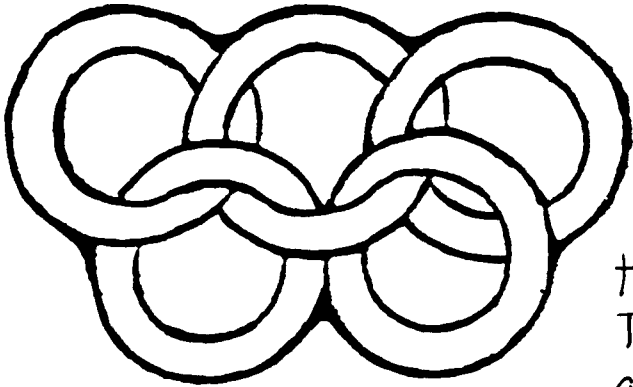
Mini Olympics

_____

Event

_____

Athlete

19

Fill in the year.

Mini Olympics

_____

Event

_____

Athlete

19
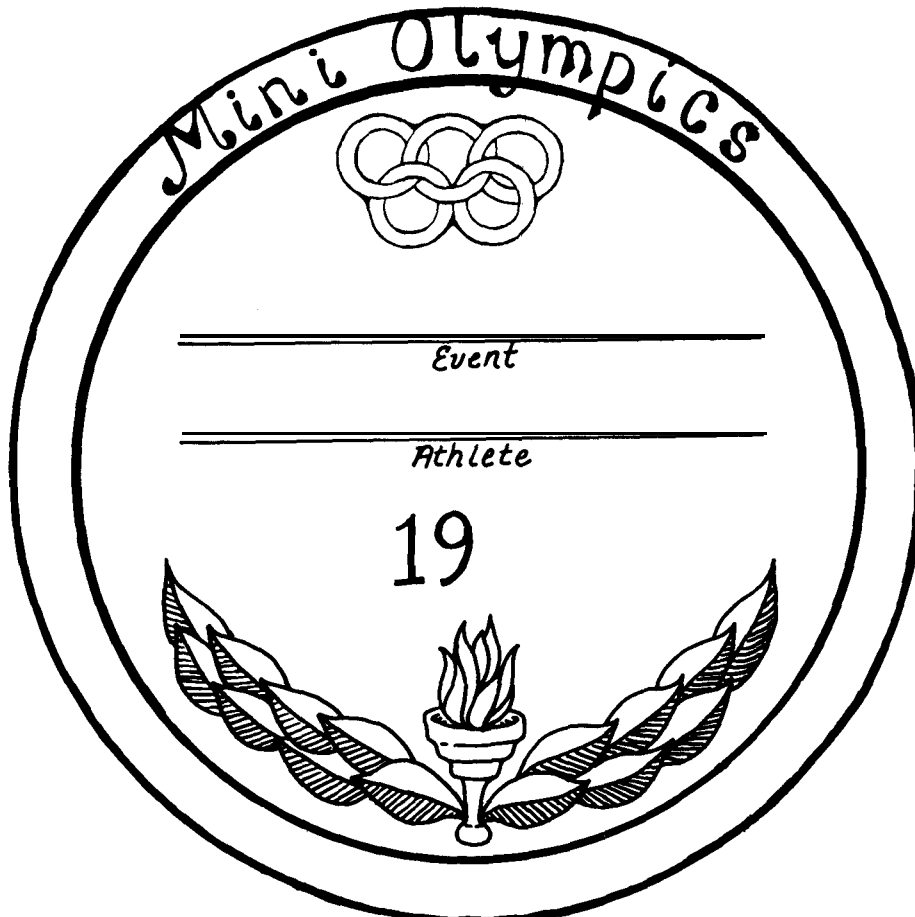
Olympic Symbol

Five interlocking rings represent the five major continents of the world. Their colors in order from left to right are: blue, yellow, black, green, and red. These colors are special because at least one of them appears in the flag of every nation of the world. These colorful rings are joined together to remind us of the sporting friendship of all mankind.

History: Ancient Games

Traditionally the accepted date of the first Olympiad is 776 B.C. but there is reasonable certainty that they were held considerably earlier than that. These festivities were held in Olympia, Greece where a stadium and a temple to Zeus were built. On selected occasions "a day of games" was held to honor a god or a dead hero. Only males were allowed to participate and events originally included a foot race, also called the stadium race, a long distance foot race, wrestling, and the pentathlon which was a combination of five events. The ancient games ceased to take place after 392 A.D. because they were viewed by Christians as a pagan ritual.

The Olympic Motto:

Citius, Altius, Fortius

from the Latin meaning swifter, higher, stronger. These words are used to build healthy attitudes and winning spirits in preparation for competition.

The Olympic Flame

The Olympic Flame is lighted by the Olympic torch during the opening ceremonies. The flame is a symbol of peace and is lit first in the temple of Zeus in Olympia. Thousands of relay runners from many countries then carry it to the stadium of the city hosting the games. The flame is passed by hand from one runner to the next.
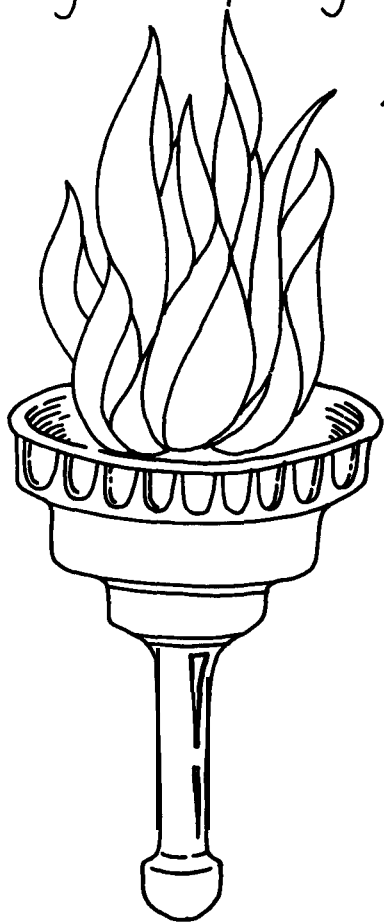
Modern Olympic Games

Credit for the revival of the Olympic Games goes to Pierre de Coubertin, a French baron who felt strongly about bringing together representatives from many nations for the purpose of peaceful competition. He posed these words that now make up the Olympic creed: "The most important thing in the Olympic Games is not to win but to take part, just as the most important thing in life is not the triumph but the struggle. The essential thing is not to have conquered but to have fought well." With respect and honor to Greece, the land of the original games, the first modern games were held in Athens in 1896 where nine countries came together.
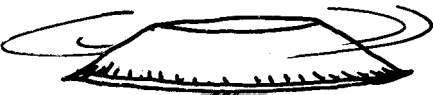
The 1988 Olympic Games were held in Seoul, South Korea where 161 countries competed in 23 Olympic sports. Winners in each event earned gold, silver and bronze medals for their performances. Each athlete made this pledge:

We swear that we will take part in these Olympic Games in the true spirit of sportsmanship and that we will respect and abide by the rules which govern them for the glory of the sport and the honor of our country.

MINI-METRIC OLYMPICS
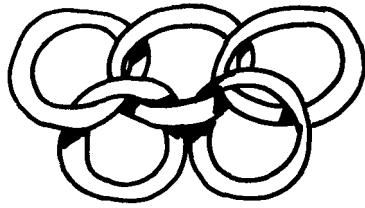
COMPETITOR _____

TEAM CAPTAIN _____

EVENT	ESTIMATE	ACTUAL	SCORE (DIFFERENCE)
1. PAPER PLATE DISCUS	_____ cm	_____ cm	_____
2. PAPER STRAW JAVELIN	_____ cm	_____ cm	_____
3. COTTON BALL SHOT PUT	_____ cm	_____ cm	_____
4. RIGHT HANDED MARBLE GRAB	_____ g	3	_____
5. LEFT-HANDED SPONGE SQUEEZE	_____ ml	_____ ml	_____
6. BIG FOOT CONTEST	_____ cm^2	_____ cm^2	_____
		TOTAL	_____

1	26	51	76	1	26	51	76
2	27	52	77	2	27	52	77
3	28	53	78	3	28	53	78
4	29	54	79	4	29	54	79
5	30	55	70	5	30	55	70
6	31	56	81	6	31	56	81
7	32	57	82	7	32	57	82
8	33	58	83	8	33	58	83
9	34	59	84	9	34	59	84
10	35	60	85	10	35	60	85
11	36	61	86	11	36	61	86
12	37	62	87	12	37	62	87
13	38	63	88	13	38	63	88
14	39	64	89	14	39	64	89
15	40	65	90	15	40	65	90
16	41	66	91	16	41	66	91
17	42	67	92	17	42	67	92
18	43	68	93	18	43	68	93
19	44	69	94	19	44	69	94
20	45	70	95	20	45	70	95
21	46	71	96	21	46	71	96
22	47	72	97	22	47	72	97
23	48	73	98	23	48	73	98
24	49	74	99	24	49	74	99
25	50	75	100	25	50	75	100

PAPER STRAW JAVELIN THROW

PAPER STRAW THROW

1. Place feet on starting line. Throw "javelin". (One throw only.)

2. Estimate the distance (in cm) that you threw the "javelin." Record.

3. Measure distance from starting line to the position of the "javelin." Record.

MINI-METRIC OLYMPICS
TASK CARD

PAPER PLATE DISCUS

PAPER PLATE

DISCUS

1. Place feet on starting line. Throw the "discus" (one throw only)

2. Estimate the distance (in cm) that you threw the "discus." Record.

3. Measure distance from starting line to the position of the paper plate. Record.

MINI-METRIC OLYMPICS
TASK CARD

COTTON BALL SHOT PUT

1. Place feet on starting line. Throw the "cotton ball shot." (one throw only.)

2. Estimate the distance (in cm) that you put the "shot." Record.

3. Measure distance from starting line to the position of the cotton ball. Record.

RIGHT-HANDED MARBLE GRAB

1. With the right hand only, grab a fistful of marbles from the container.

   Place marbles on a balance scale.

2. Estimate (in grams) the mass of marbles you grabbed in your right hand. Record.

3. Measure the mass of the marbles. Record.

LEFT-HANDED SPONGE SQUEEZE

1. Have sponge soaking in large bucket of water. Observe.

2. Squeeze sponge into separate container. (one squeeze only)

3. Estimate the amount of water (in ml) you squeezed out of the sponge. Record.

4. Measure water squeezed. Record.

Mini-Metric Olympics
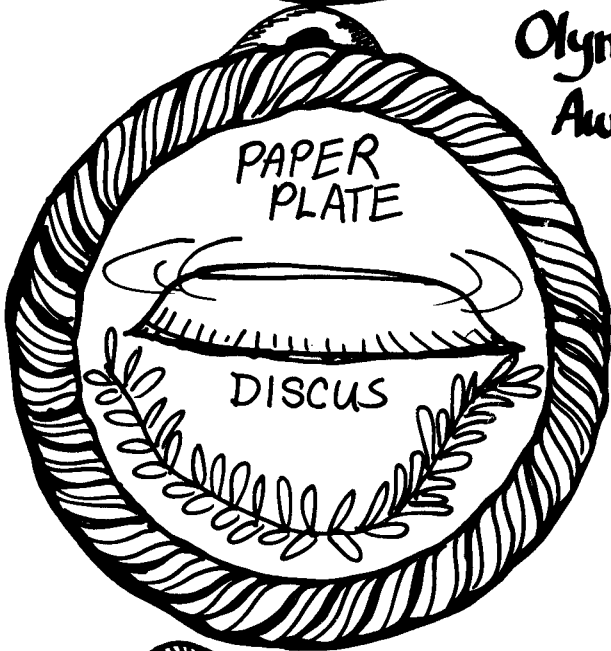   Task Card

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BIG FOOT WAS HERE!

1. Remove one shoe. Trace around your foot on square centimeter graph paper.

2. Estimate in square cm the area of your foot print. Record.

3. Figure the area of your foot print. Record.

Mini-Metric Olympics
   Task Card

Mini-Metric Olympics Awards

PAPER STRAW THROW

SPONGE SQUEEZE

PAPER PLATE DISCUS

BIG FOOT

COTTON BALL SHOTPUT

RIGHT HANDED MARBLE GRAB

Mini Metric Olympics II

$$\frac{Error}{Actual} \times 100 = \% \text{ of ERROR}$$

	EVENT	ESTIMATE	ACTUAL	ERROR	% ERROR	SCORE
LENGTH	1. HAND SPAN	mm				
	2. ARM SPAN (tip to tip)	cm				
	3. STEADY STRIDE	cm				
MASS	1. WALLET	g				
	2. PENCIL	g				
	3. PERSONAL ITEM (FREE CHOICE)	g				
	4. BODY WEIGHT	Kg				
VOLUME	1. PEN CAP	ml				
	2. PAPER CUP	ml				
	3. YOUR FIST	ml				
	4. BLOCK OF WOOD	ml				
AREA	1. SHEET OF PAPER	cm²				
	2. CLASSROOM CEILING	cm²				
	3. FOOTBALL FIELD	m²				
	4. DESK TOP	cm²				
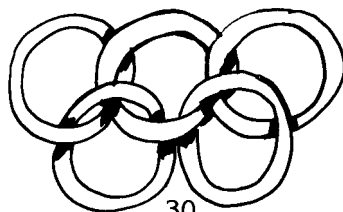
METRIC SCAVENGER HUNT
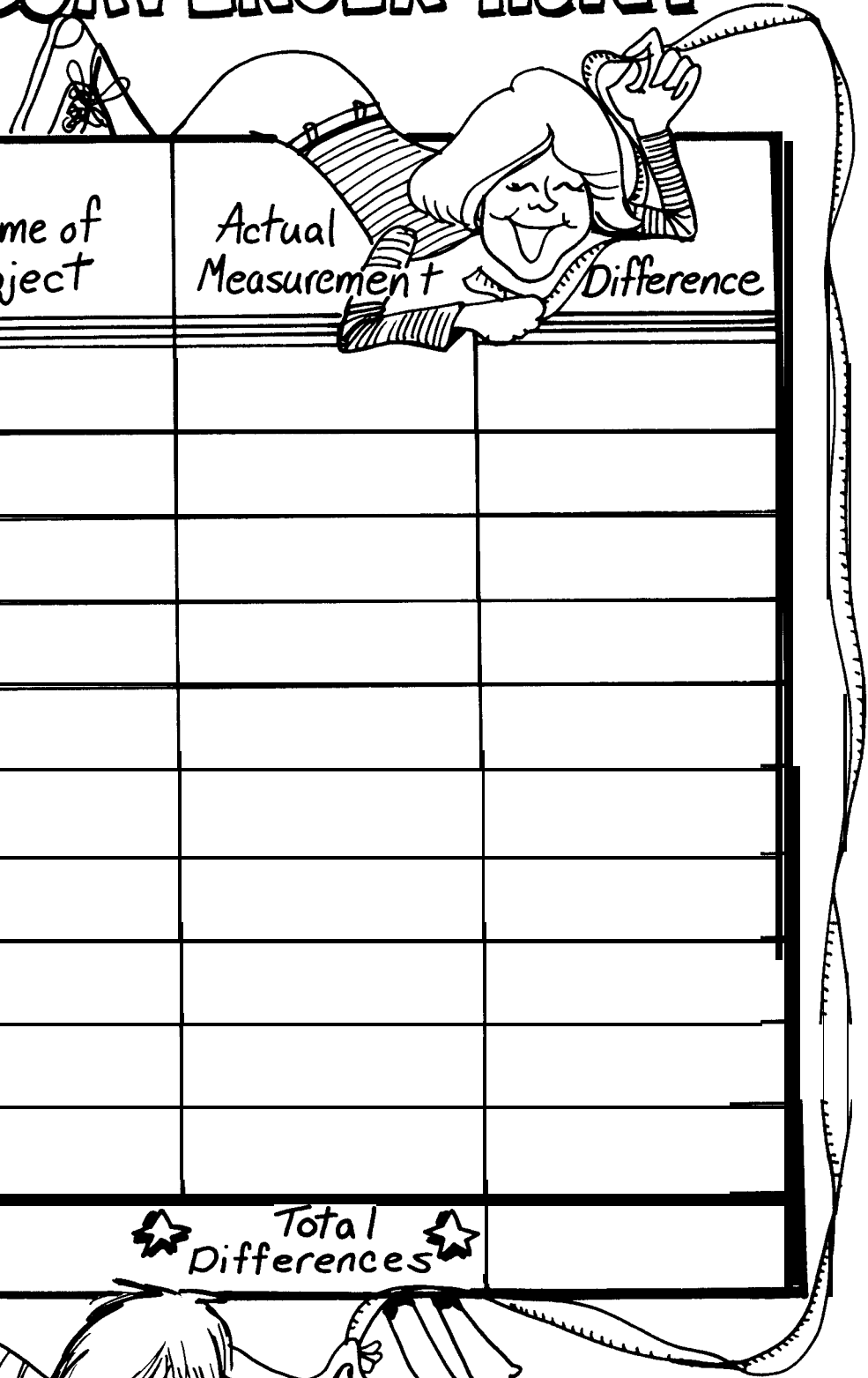
Try to find objects of these lengths	Name of Object	Actual Measurement	Difference
1. 40 cm			
2. 87 cm			
3. 3 cm			
4. 1 m			
5. 31 cm			
6. 1.5 m			
7. 65 mm			
8. 240 mm			
9. 28 cm			
10. 2 mm			
☆ Total Differences ☆			