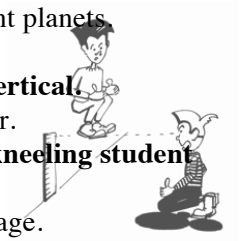
Name:_____ Date:_____ Period:___

How High Can You Jump on Another Planet?

Purpose: To determine the impact of the gravity of different planets.

Procedures: work in pairs

1. Tape a meter stick against a table leg or bench so it's **vertical.**
2. One student kneels so that their eyes are level with ruler.
3. The other student jumps as high as they can while the **kneeling student** records the height they achieved in centimeters.
4. Repeat the jump two more times and calculate the average.
5. Change positions so that each person gets a turn at jumping.
6. Use the data to answer all questions.



Data Table A

Student Name	Jump height #1	Jump height #2	Jump height #3	Average (1+2+3)/3 (cm)
1				
2				

Write the average value for height 'h' in table B. Using this value, **calculate** how high you can jump on other members of the Solar System (SS) by comparing its surface gravity with Earths. **Record** your approximate weight for the **S** value and **calculate** your weight on each planet/object.

Data Table B

Solar System Member	**Surface gravity** compared to Earth	**Height I can jump** in cm (÷ height 'h' on Earth by surface gravity)	**Scale reading in** kg if standing on the member of our SS.
Earth	1	h =	S =
Sun	27.9	h ÷27.9=	S x 27.9=
Mercury	0.38	h ÷0.38=	S x 0.38 =
Venus	0.91	h ÷0.91=	S x 0.91 =
Mars	0.38	h ÷0.38=	S x 0.38 =
Jupiter	2.36	h ÷2.36=	S x 2.36 =
Saturn	0.92	h ÷0.92=	S x 0.92 =
Uranus	0.89	h ÷0.89=	S x 0.89 =
Neptune	1.12	h ÷1.12=	S x 1.12 =
Pluto (dwarf)	0.06	h ÷0.06=	S x 0.06 =
Moon	0.16	h ÷0.16=	S x 0.16 =

1. I could jump the highest on _____, and the lowest on _____.
2. Explain why you can jump higher on Mercury than Neptune.
3. On what planet might you break the world record in high jump? Explain…
4. Analyze jump height and weight for each planet, explain the relationship.

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Data Table A

Student Name	Jump height #1	Jump height #2	Jump height #3	Average (1+2+3)/3 (cm)
1				
2				

Write the average value for height 'h' in table B. Using this value, calculate how high you can jump on other members of the Solar System (SS) by comparing its surface gravity with Earths. Record your approximate weight for the S value and calculate your weight on each planet/object.

Data Table B

Solar System Member	Surface gravity compared to Earth	Height I can jump in cm (÷ height 'h' on Earth by surface gravity)	Scale reading in kg if standing on the member of our SS.
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