

Planet Picking, Key to Answers

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Planet Picking Worksheet

A: Background

	Name of planetary body	Interesting Property
1	Mercury	No atmosphere Many impact craters Slow rotation, so very hot on one side, cold on other
2	Venus	Runaway greenhouse effect, very hot everywhere Lots of clouds Thick atmosphere, CO ₂
3	Earth	Oceans, polar ice caps, snow covered mountains Life, architecture Atmosphere, N ₂ and O ₂ , half cloudy, half clear blue
4	Mars	Red orange sandy soil, some craters Polar ice caps, huge volcano Olympus Mons, dry rivers Atmosphere mostly clear, a few clouds
5	Jupiter	Largest planet in the solar system Lots of clouds in stripes due to fast spin Great Red Spot hurricane
6	Saturn	Bright ring system Lots of yellow orange clouds in pale stripes due to fast spin
7	Uranus	Pale blue cloudy atmosphere Spins on its side
8	Neptune	Pale greenish cloudy atmosphere Very cold
9	Pluto	Dwarf planet No detailed spacecraft pictures yet. The New Horizons spacecraft is on its way and will arrive at Pluto in 2015.

B: Whole Body Images

Card	Name of planetary body	Reasoning
14	Mercury	Heavily cratered Probably no atmosphere
15	Venus	Somewhat banded clouds UV image
9	Earth	Dark oceans, tan continents (Saudi Arabia) Clouds Polar ice caps
13	Earth's Moon	Heavily cratered But also dark lava flows (Mare regions) Man, Lady, Rabbit
10	Mars	Orange red desert Grey basalt highlands Polar ice cap, clouds
16	Jupiter	Banded orange cloud deck Great Red Spot storm
17	Saturn	Beautiful ring system Banded cloud deck
18	Pluto	Poor detailing, pixilated, far away

How many whole-body images? 8. How many close-up images? 10

What fraction of the cards are the whole body images? 8/18

Simplify this fraction 4/9

Calculate its decimal value 44%

What percent of the cards remain to be classified? 56%. These are the close-ups.

C: Close-up Images, Clouds

Card	Description or drawing	Probable planet
1	Clouds over the mountains	Earth (blue sky, architecture)
3	Clouds over the mountain	Earth (blue sky, tree)
4	Misty cloud in the valley	Earth (trees)
5	A few clouds over the water and land	Earth (lakes or seas, Nile River delta, Sinai peninsula)
6	Patchy clouds over lakes and forests on coastline	Earth (lakes, forests)
8	Swirling hurricane	Earth

What fraction of the close-up images show clouds? $\frac{6}{10}$

What percent of the close-up images show clouds? 60% (Isn't the decimal system wonderful?)

C: Whole Body Images, Clouds

9	V-shaped cloud, patchy clouds	Earth (Africa)
10	Hazy band of cloud at top and bottom	Mars (orange surface)
15	Bands of patchy clouds	Venus
16	Orange banded clouds with festoons, hurricane	Jupiter
17	Orange smoothly banded clouds	Saturn

What fraction of the whole body images show clouds? $\frac{5}{8}$

What percent of the whole body images show clouds? 63%

So, what fraction of the 18 images show clouds? $\frac{11}{18} = 61\%$

Are clouds more easily seen on the close-up images or on the whole body images? The same

D1: A New Category: _Mountains_____

Card	Description or drawing	Probable planet
1	Snow covered mountains with architecture	Earth
3	Snow covered mountains	Earth
12	Volcano, shield shape, Olympus Mons	Mars

What fraction of all the images show mountains? _____3/18_____

What percent of the images show mountains? ____17%_____

D2: A New Category: _Valleys_____

Card	Description or drawing	Probable planet
4	Mist filled valley in forest	Earth
5	Nile River valley, Egypt	Earth
7	Winding valley near craters	Mars
11	Red winding valley in forest	Earth

What fraction of all the images show valleys? _____4/18_____

What percent of the images show valleys? ____22%_____

D3: A New Category: _Craters_____

Card	Description or drawing	Probable planet
10	Crater in middle of image	Mars
11	Several craters near the valley	Mars
12	Caldera on peak of volcano, crater on left flank	Mars
13	Many craters	Earth's Moon
14	Many craters	Mercury

What fraction of all the images show craters? _____5/18_____

What percent of the images show craters? ____28%_____

D4: A New Category: _Water_____

Card	Description or drawing	Probable planet
2	Ocean with small waves around stack islands	Earth
5	Mediterranean Sea and Red Sea, near Egypt	Earth
6	Lakes or sea with island	Earth
8	Ocean under a hurricane	Earth
9	Atlantic and Indian Oceans	Earth

What fraction of all the images show water? _____5/18_____

What percent of the images show water? _____28%_____

E: Final Identifications

Card	Planet	Specific identification
1	Earth	Pacific Science Center, Seattle, Washington
2	Earth	Blue sky, standing water
3	Earth	Mount Ranier near Seattle
4	Earth	Forests
5	Earth	Nile River valley and delta, Sinai peninsula, Red Sea
6	Earth	Island and coastline of standing water
7	Earth	Muddy river
8	Earth	Hurricane in blue sky, thin band on horizon
9	Earth	Atlantic and Indian Oceans, Africa, Madagascar
10	Mars	Syrtis Major on the right
11	Mars	Craters and winding river valley (now dry)
12	Mars	Olympus Mons, largest volcano in the solar system
13	Earth's Moon	The near side, Crater Tycho, Rabbit in the moon
14	Mercury	Heavily cratered
15	Venus	Partly banded clouds
16	Jupiter	Great Red Spot storm, twice as big as the whole Earth
17	Saturn	Lovely rings
18	Pluto	Bad pixilated image, taken from Earth, no spacecraft yet

F: Mystery Image: _____Mars (red orange, some craters, atmosphere on horizon)