



"Stuff" of the Solar System

Identifying Solar system Samples by Percentage of Elements

Element Abundance Table

	Hydrogen	Nitrogen	Carbon	Oxygen	Helium	Sodium	Argon	Potassium
Sun	92.1			0.06	7.8			
Mercury's Atmosphere	22			42	6	29		0.5
Earth's Atmosphere		78.4		21			1	
Mar's Atmosphere		2.7	31.8	63			1.6	
Human Body	61.6	1.5	10	26.3				





Method 1

“Stuff” of the Solar System

Identifying Solar system Samples by Percentage of Elements

Identify the elements in each of the lettered bottles. Using your best estimation and the Element Abundance Table, give your best guess of what the bottle represents. For this activity, **1 bead is ≤ .2%**. Each bottle has approximately 300 beads.

Bottle #A	Element	%
1	Hydrogen	92.1
2	Helium	7.8
3	Oxygen	0.06

What am I? _____

Bottle #B	Element	%
1	Nitrogen	78.4
2	Oxygen	21
3	Argon	1

What am I? _____

Key	Yellow	Hydrogen
	Orange	Nitrogen
	Green	Carbon
	Blue	Oxygen
	Pink	Helium
	Purple	Sodium
	Black	Argon
	White	Potassium

Bottle #C	Element	%
1	Hydrogen	61.6
2	Oxygen	26.3
3	Carbon	10
4	Nitrogen	1.5

What am I? _____

Bottle #D	Element	%
1	Oxygen	42
2	Sodium	29
3	Hydrogen	22
4	Helium	6
5	Potassium	0.5

What am I? _____

Bottle #E	Element	%
1	Oxygen	63
2	Carbon	31.8
3	Nitrogen	2.7
4	Argon	1.6

What am I? _____



Method 2

“Stuff” of the Solar System

Identifying Solar system Samples by Percentage of Elements

Identify the elements in each of the lettered bottles. Using your best estimation, write down the approximate % for each identified element. Based on the Element Abundance Table, give your best guess of what the bottle represents. For this activity, **1 bead is ≤ .2%**. Each bottle has approximately 300 beads.

Bottle #A	Element	%
1	Hydrogen	
2	Helium	
3	Oxygen	

What am I? _____

Bottle #B	Element	%
1	Nitrogen	
2	Oxygen	
3	Argon	

What am I? _____

Key	Yellow	Hydrogen
	Orange	Nitrogen
	Green	Carbon
	Blue	Oxygen
	Pink	Helium
	Purple	Sodium
	Black	Argon
	White	Potassium

Bottle #C	Element	%
1	Hydrogen	
2	Oxygen	
3	Carbon	
4	Nitrogen	

What am I? _____

Bottle #D	Element	%
1	Oxygen	
2	Sodium	
3	Hydrogen	
4	Helium	
5	Potassium	

What am I? _____

Bottle #E	Element	%
1	Oxygen	
2	Carbon	
3	Nitrogen	
4	Argon	

What am I? _____



Method 3

“Stuff” of the Solar System

Identifying Solar system Samples by Percentage of Elements

Identify and record the elements in each of the lettered bottles. Using your best estimation, write down the approximate % for each identified element. Based on what you know about the universe, give your best guess of what the bottle represents. For this activity, **1 bead is ≤ .2%**. Each bottle has approximately 300 beads.

Bottle #A	Element	%
1		
2		
3		

What am I? _____

Bottle #B	Element	%
1		
2		
3		

What am I? _____

Key	Yellow	Hydrogen
	Orange	Nitrogen
	Green	Carbon
	Blue	Oxygen
	Pink	Helium
	Purple	Sodium
	Black	Argon
	White	Potassium

Bottle #C	Element	%
1		
2		
3		
4		

What am I? _____

Bottle #D	Element	%
1		
2		
3		
4		
5		

What am I? _____

Bottle #E	Element	%
1		
2		
3		
4		

What am I? _____



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Bottle Fill Sheet

For small bottles (11 ounce) with 300 beads

Sample	Substance	Hydrogen		Nitrogen		Carbon		Oxygen	
		Yellow %	Yellow # beads	Orange %	Orange # beads	Green %	Green # beads	Blue %	Blue # beads
A	Sun	92.1	276					0.06	1
B	Earth's Atmosphere			78.4	234			21	63
C	Human Body	61.6	185	1.5	5	10	30	26.3	79
D	Mercury's Atmosphere	22	66					42	126
E	Mar's Atmosphere			2.7	8	31.8	95	63	189
Total Beads/Set			527		247		125		458

Sample	Substance	Helium		Sodium		Argon		Potassium	
		Pink %	Pink # beads	Purple %	Purple # beads	Black %	Black # beads	White %	White # beads
A	Sun	7.8	23						
B	Earth's Atmosphere					1	3		
C	Human Body								
D	Mercury's Atmosphere	6	18	29	87			0.5	1
E	Mar's Atmosphere					1.6	5		
Total Beads/Set			41		87		8		1



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Answer Key

Bottle #A	Element	% = # of beads
1	Hydrogen	92.1 = 276
2	Helium	7.8 = 23
3	Oxygen	.06 = 1

What am I? Sun

Bottle #B	Element	% = # of beads
1	Nitrogen	78 = 234
2	Oxygen	21 = 63
3	Argon	1 = 3

What am I? Earth's Atmosphere

Bottle #C	Element	% = # of beads
1	Hydrogen	61.6 = 185
2	Oxygen	26.3 = 79
3	Carbon	10 = 30
4	Nitrogen	1.5 = 5

What am I? Human Body

Bottle #D	Element	% = # of beads
1	Oxygen	42 = 126
2	Sodium	29 = 87
3	Hydrogen	22 = 66
4	Helium	6 = 18
5	Potassium	0.5 = 1

What am I? Mercury's Atmosphere

Bottle #E	Element	% = # of beads
1	Oxygen	63 = 189
2	Carbon	31.8 = 95
3	Nitrogen	2.7 = 8
4	Argon	1.6 = 5

What am I? Mar's Atmosphere

Key	Yellow	Hydrogen
	Orange	Nitrogen
	Green	Carbon
	Blue	Oxygen
	Pink	Helium
	Purple	Sodium
	Black	Argon
	White	Potassium



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