

Topic C

"Part 3: Planet Groups"

(Web Version: 08-15-01)

1

Comparative Planetology

Three Planet Groups

- Terrestrial
- Jovian
- "Plutinos"

Bottom of *Study Guide* Table 6 Shows Groups

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Study Recommendation

- From
 - Class material
 - *Study Guide* Tables 5 – 6
 - Textbook chapters 4 – 8
- Summarize group properties
 - Tabular format recommended
 - Example layout follows . . .

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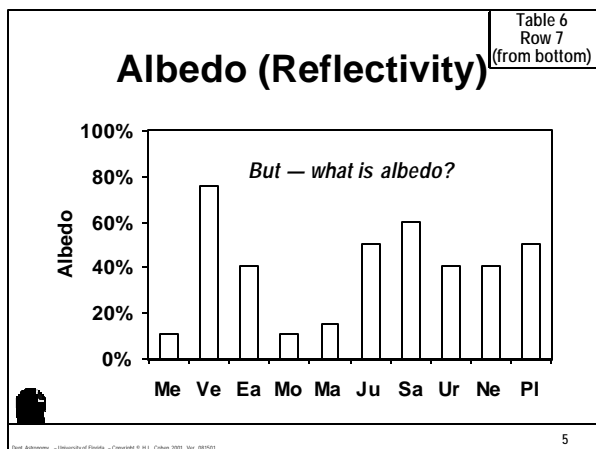
See Example on Web —under *Study Guide* Tables (Table 6b)

Example: Group Summary

Feature	Terrestrial	Jovian
Size	Small	Large
Mass	Small	Large
Mean Density	Large (3-5 gm/cc)	Small (1-2 gm/cc)
Rotation	Slow (\approx 1d)	Fast (< 1 d)
Oblateness	• Use <i>Study Guide</i> Table, etc., to develop <i>own list</i>	
No. Satellites	• Then use class notes, <i>Study Guide</i> tables, & text to fill in	
Rings	Examples (make up own list)	
Albedo		
Amt. of Atmosphere		
Composition		
Structure		
Location in Sol. Sys.		

Add Plutino column

Examples

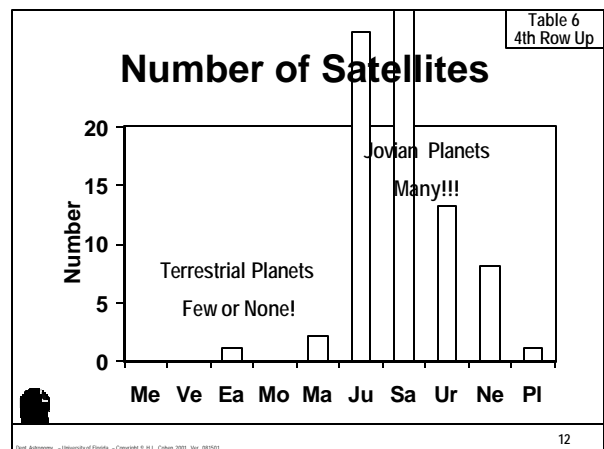
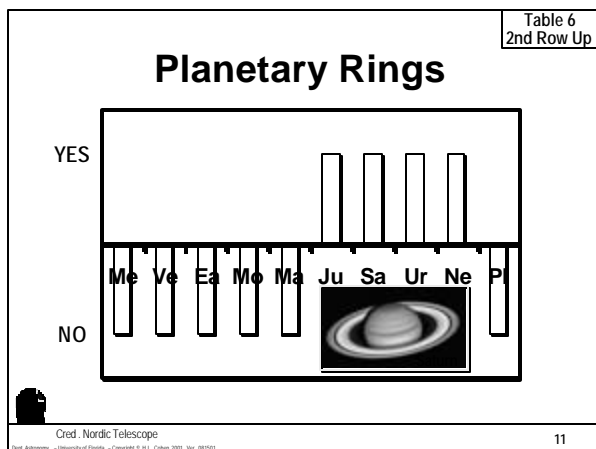
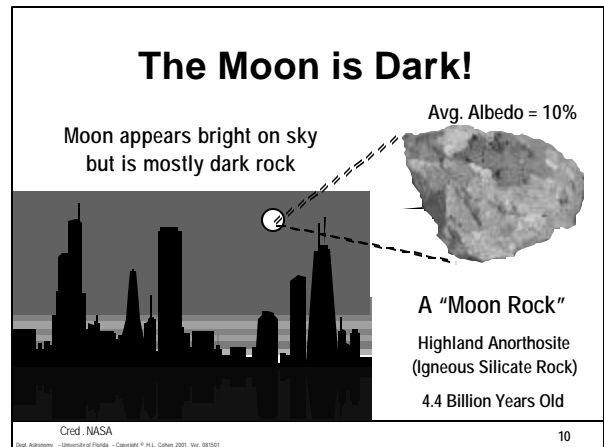
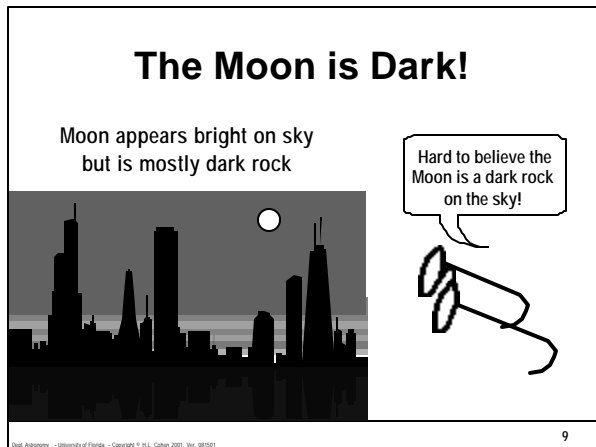
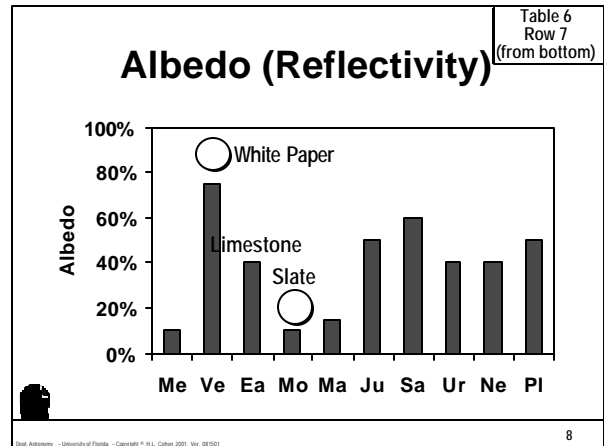
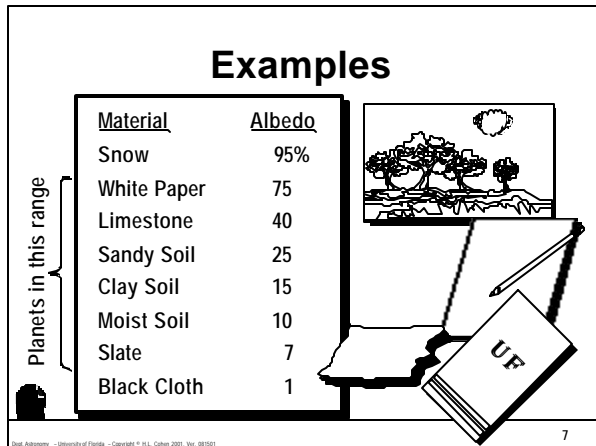


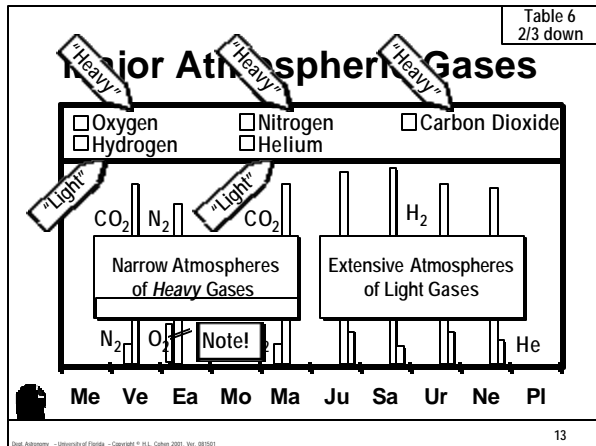
Albedo

Proportion of incident light reflected

Object	Albedo	
Perfectly Reflective	1.0 or 100%	
Perfectly Absorbing	0.0 or 0%	

6





Earth's Bulk Not Gas

- Most of Earth & Venus solid
- Atmospheric gases *not* extensive
- Blue line approximates atmospheric thickness!

Earth

Cred. NASA/JPL

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Same for Venus

- Most of Earth & Venus solid
- Atmospheric gases *not* extensive
- Blue line approximates atmospheric thickness!

Venus

Cred. NASA/JPL

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Table 5
Item #6

Gross Structure

Terrestrial Planet

See pg. 129 of text

Jovian Planet

See pg. 199-200 of text

Contrast

Not to scale

"Rocky"

"Gaseous"

Cred. NASA

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Table 5
Item #6

Chemical Segregation

Solar system chemically segregated

- Inner — mostly refractory materials
- Outer — mostly volatile materials

Rocky Planets

Gas Giants

A major point about formation of solar system

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Origin of Solar System

- Origin complex & incompletely solved
- Historically attempts futile (inadequate data)
- Some basics now understood
- Current theories include . . .

Planet formation as natural process of star formation

(See text chp. 4, pp. 113 ff. for more info)

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