

Balancing Earth's Energy Checkbook

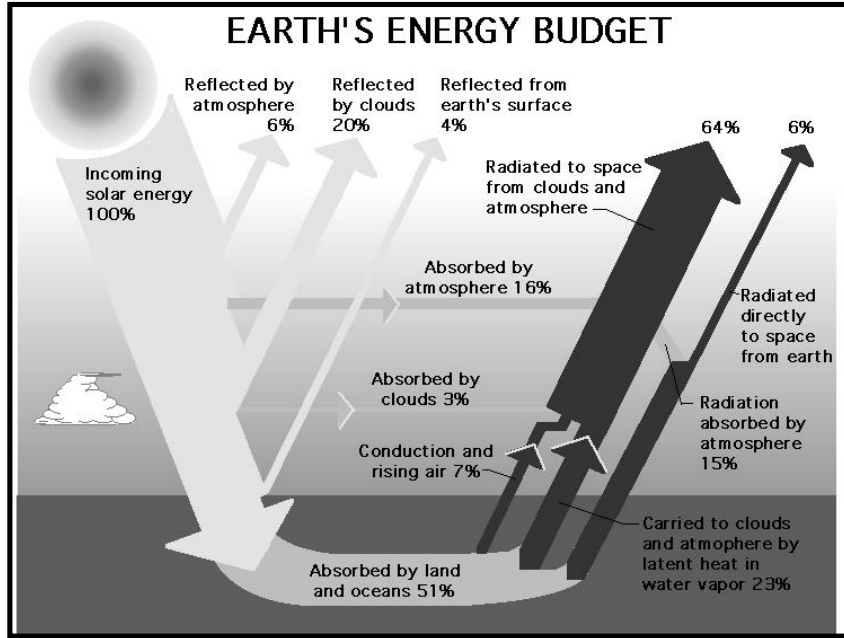
Geology/Earth Science

Mr. Traeger

Name: _____ Period: _____ Date: _____

Purpose

One of the best skills that you can learn is how to balance your checkbook. What would happen if you couldn't balance your checkbook? Well, you would probably start bouncing checks or have an excess of money in your account (Wouldn't that be nice!). Well, it turns out that the Earth has its very own checkbook. Instead of money, the Earth balances energy in its account. It's called an energy budget. In an energy budget, having too little or too much energy in the account is *not* a good thing. In this activity, you will use the following diagram and the diagram on page 373 to balance Earth's Energy Checkbook.



Procedure

- Analyze the graphic above. You will substitute dollars in place of percentages. Determine what should be considered a payment/debit (outgoing) and what should be considered a deposit/credit (incoming). Remember that you must make an initial deposit to your account! **Geology:** Indicate whether the type of energy (radiation) for each transaction is long wave (infrared) or shortwave (UV/visible).
- Use the following checkbook to balance your energy budget. **Use pencil!**

Number	Date	Transaction Description	Payment/ Debit (-)	Deposit/ Credit (+)	Balance \$
1					
2					
3					
4					
5					
6					

Balancing Earth's Energy Checkbook	
Geology/Earth Science	Mr. Traeger

Number	Date	Transaction Description	Payment/ Debit (-)	Deposit/ Credit (+)	Balance \$
7					
8					
9					
10					
11					
12					
13					
14					

Questions

1. What was your final balance?

2. Does your final balance make sense? Why or why not?

3. If you come out with a positive energy balance, what would happen to the Earth's average temperature?

4. If you come out with a negative energy balance, what would happen to the Earth's average temperature?

5. If you come out with a zero energy balance, would the earth heat up or cool down?

6. Under what conditions would you expect global warming to occur?

7. Under what conditions would you expect an ice age to occur?

8. What will happen to life on our planet (yes, this includes you!) if the energy balance is upset?