

# G-3 ASSIGNMENT (5 pts)

## Applying the Energy Balance Terms

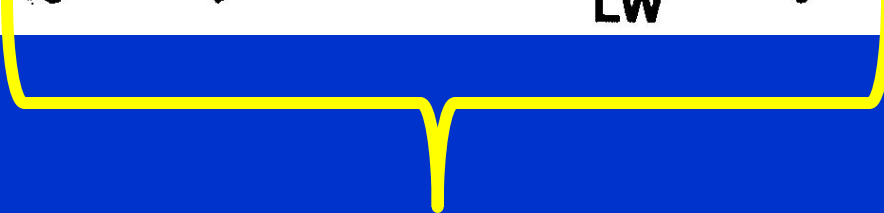
While you should work in pairs and discuss with each other, each member of the group must take the lead in answering at least TWO of the items below in his or her own handwriting. Members present should sign below and indicate which 2 or 3 items they filled in as in the example:

Stella Student (#2, #10, & #12) \_\_\_\_\_

**We worked on this for ~20 minutes in class then went on to the TOPIC #11 Lecture.**

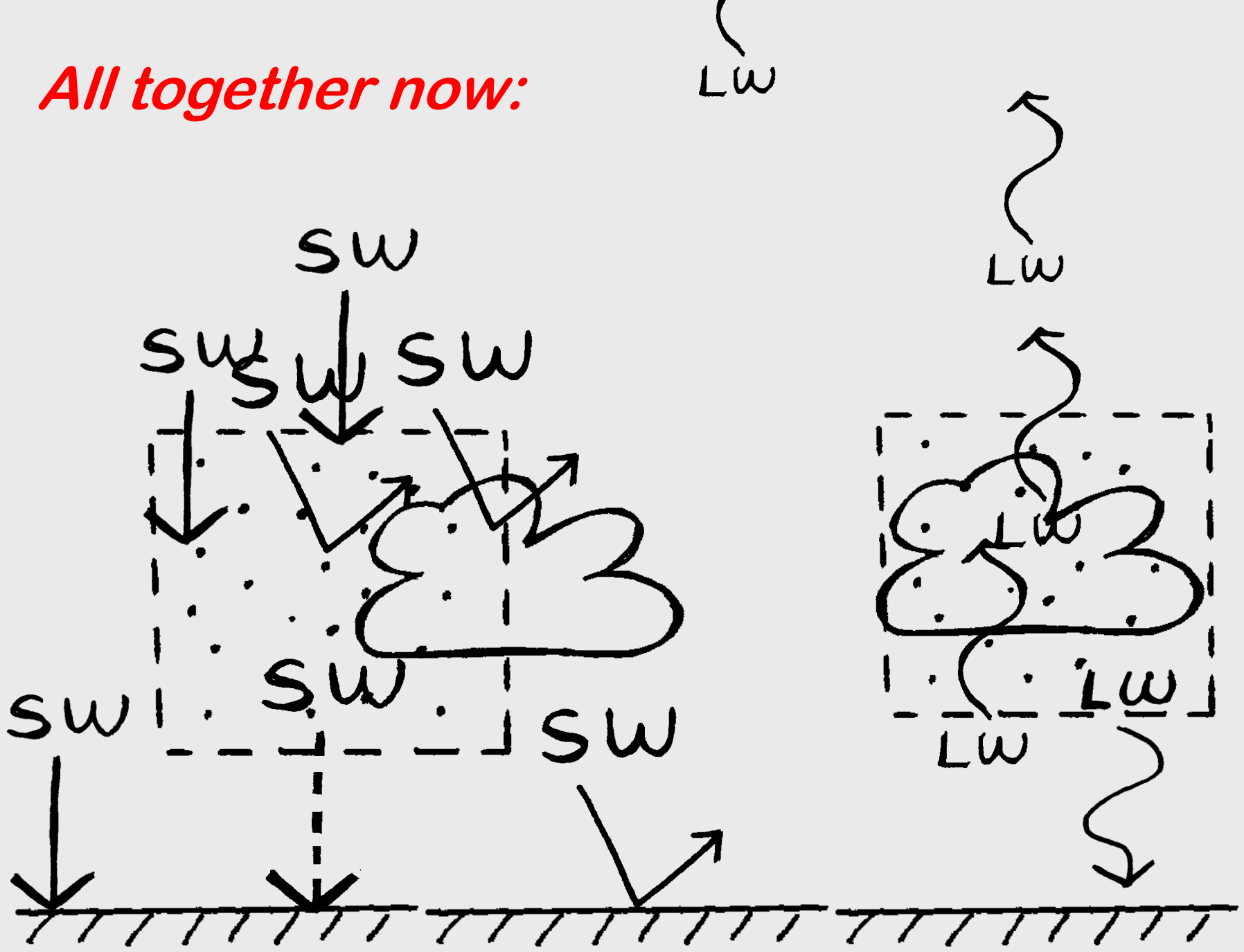
**We'll wrap it up on Tuesday . . . .**

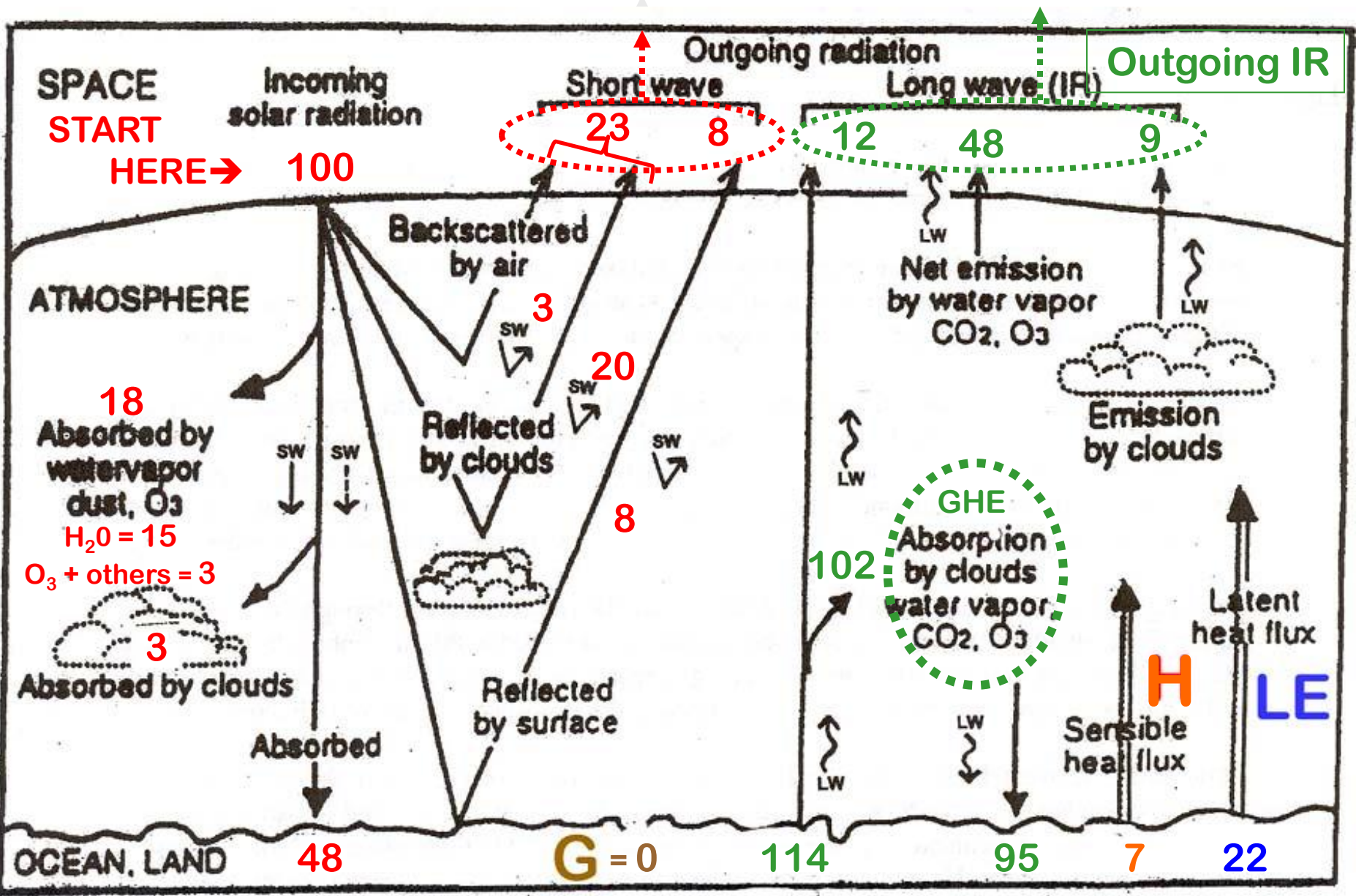
Last class we learned about the  
**ENERGY BALANCE EQUATION:**

$$R_{NET} = \begin{matrix} SW \\ \downarrow \end{matrix} + \begin{matrix} SW \\ \vdots \downarrow \end{matrix} - \begin{matrix} SW \\ \nearrow \end{matrix} - \begin{matrix} \uparrow \\ \text{LW} \end{matrix} + \begin{matrix} LW \\ \downarrow \end{matrix} = H + LE + G$$


**FIRST:** all the pathways of incoming and outgoing electromagnetic energy (SW & LW) . . . . .

*All together now:*





# ENERGY BALANCE EQUATION:

$$R_{\text{NET}} = \begin{array}{c} \text{SW} \\ \downarrow \\ \text{SW} \\ \downarrow \\ \text{SW} \\ \searrow \\ \text{LW} \\ \uparrow \\ \text{LW} \\ \downarrow \end{array} + \begin{array}{c} \text{SW} \\ \downarrow \\ \text{SW} \\ \downarrow \\ \text{SW} \\ \searrow \\ \text{LW} \\ \uparrow \\ \text{LW} \\ \downarrow \end{array} - \begin{array}{c} \text{SW} \\ \searrow \\ \text{LW} \\ \uparrow \\ \text{LW} \\ \downarrow \end{array} - \begin{array}{c} \text{LW} \\ \uparrow \\ \text{LW} \\ \downarrow \end{array} + \begin{array}{c} \text{LW} \\ \downarrow \\ \text{LW} \\ \downarrow \end{array} = \underbrace{H + LE + G}$$

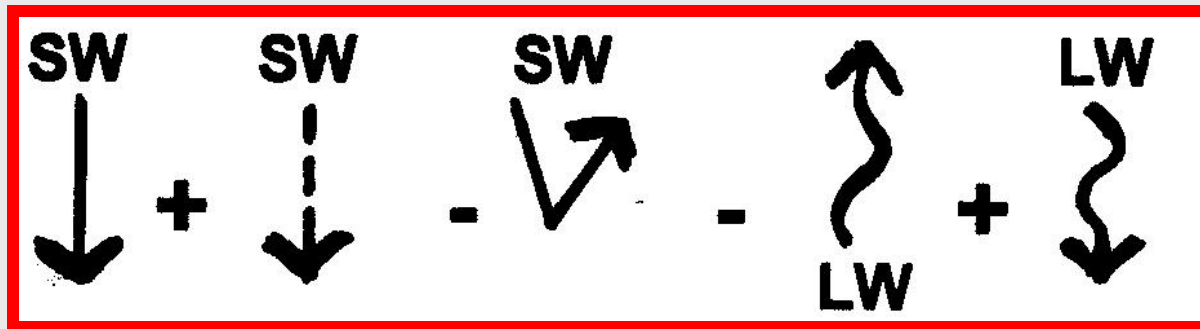
THEN: about what the “leftover” NET ENERGY  $R_{\text{NET}}$  goes into: **SENSIBLE HEAT**, **EVAPORATION** (Latent Energy), **STORAGE** in the GROUND or OCEAN . . . . .  
... all of which drives weather and climate!

# G-3 ASSIGNMENT (5 pts)

## Applying the Energy Balance Terms

Your task is to decide which **component** or **components working together** are most directly related to or responsible for the observed phenomenon.

**# 1 – #12** : Left side of equation



**# 13 - #15**: Right side of equation

**H + LE + G**

**1. blue skies**



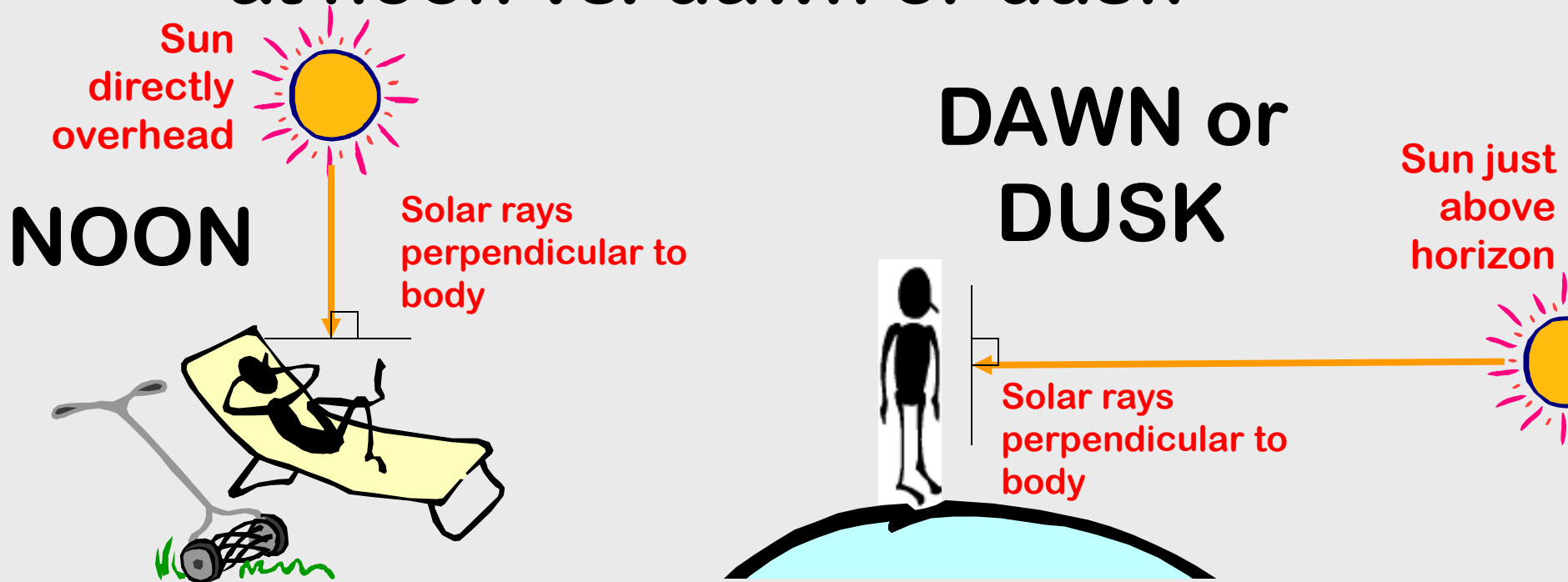
**2. Sunglasses while skiing**



**3. Bright even though cloudy**



## 4. More intense solar radiation (tan /skin damage, etc.) at noon vs. dawn or dusk

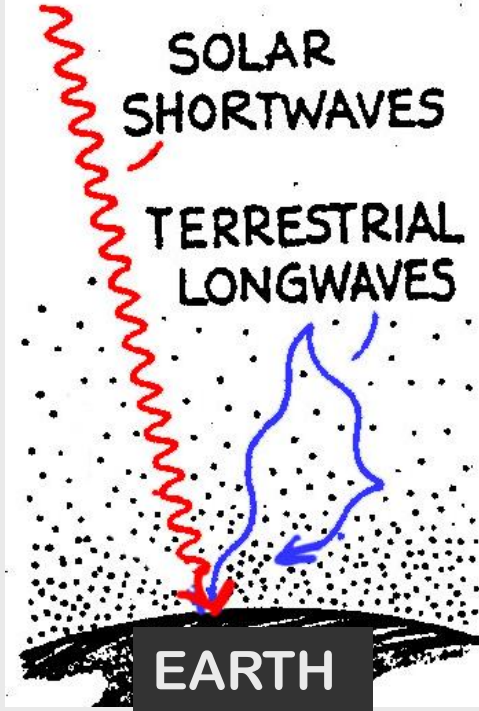


## 5. The Greenhouse Effect →

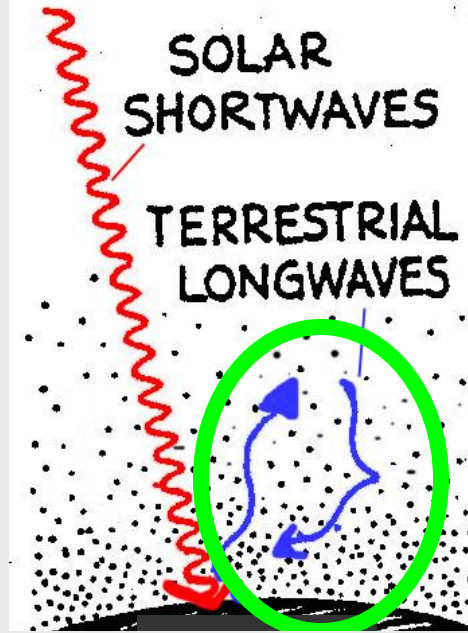


# To illustrate the GREENHOUSE EFFECT:

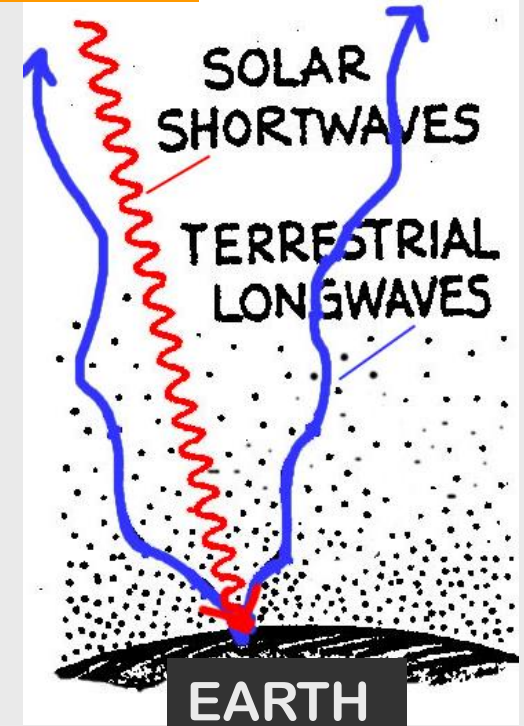
SUN



SUN



SUN



B is better than the others . . . But only the circled part represents the GH Effect!! . . .

## 6. Red sunsets



## 7. Infrared cameras / “night vision”



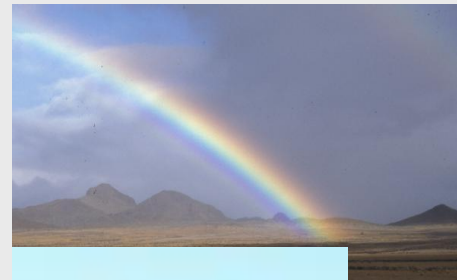
## 8. “Tennis whites” tradition



**9. Shadow on sunny day**



**10. Rainbow**



**11. Black streaks**



**12. Parking on blacktop**



# 13. Hot air balloon



# 14. Pigs cooling off in the mud



# 15. Evaporative coolers work best in the desert

