

C2/987

A Private Universe

An Insightful Lesson In How We Learn



“Why is it warm in the summer?”

SUN (Summer)

SUN (Summer)

earth
Massachusetts

Leader's Guide: A PRIVATE UNIVERSE

We Learn From Ourselves Most

When we're confronted by things we don't understand, our minds search for answers. We seldom wait for a teacher's explanation. When puzzled, we naturally dip into our storehouse of everyday experience for an explanation.

But We Teach Ourselves Wrong

The problem is that many of the ideas we put together on our own are inaccurate. Our brains are filled with “answers” for almost everything; but many are incorrect.

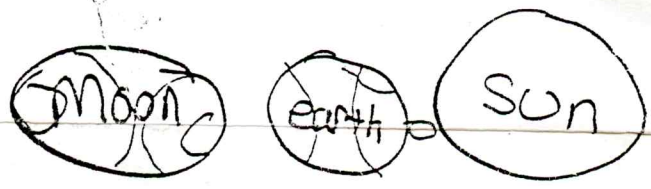
If you ever wondered “what makes it hot in the summer?” for example, you might try to reason it out yourself. You may decide logically, that “It's warmer when I come near to a fire, so maybe the distance of the Sun and Earth has something to do with it!” But you'd be wrong.

Misconceptions Block Learning

Formal learning isn't just a process of listening to the teacher and filling up your mind with new information. When we learn, we *compare* our own ideas, our own “answers,” with what the teacher says. If the teacher's explanation fits our private “answers,” then the explanation sticks. If the teacher's story differs from our own, it's difficult to absorb. Perhaps we think, “the teacher isn't saying it right, but I understand what's meant.” We thus fail to learn.

Even The Smartest Have Trouble

The more intelligent we are the more likely we will have strong misconceptions that block learning. The very best students are the ones with strong creativity and desire to learn. And so the smart students are just as likely, if not more likely, to harbor misconceptions, ideas picked up by learning, listening, and puzzling outside of class, as are the less inquisitive individuals. Furthermore, the better students are more likely to cling to their own ideas, and can hide their misconceptions with their vocabulary.



How to Deal with Misconceptions

After watching A PRIVATE UNIVERSE, the very best teachers may feel discouraged at how hard it is to change someone's thinking. Don't despair. Since misconceptions are often snared, the class time you spend exploring the ideas of two or three students will help almost everyone in the class.

Viewers have found the following tips helpful.

- 1 As you teach, remember that every student has well developed ideas (right or wrong) about the subject.
- 2 Ask questions to discover what misconceptions they have before teaching something new.
- 3 An off-the-wall comment can be a tip-off to serious misconceptions. Follow up. Ask where the idea came from, or if anyone else agrees.
- 4 Be aware of students echoing your own voice— students know what you want to hear.
- 5 A student's ability to memorize vocabulary may disguise deep-seated misconceptions. Knowing the vocabulary doesn't necessarily mean that the concepts are understood.

A PRIVATE UNIVERSE posed the question to a sample of graduating students at Harvard (still in their robes); their answers are eloquent, confident, and wrong. How did their misconceptions survive four years of Harvard education? What do they believe? How did they learn it?

A PRIVATE UNIVERSE demonstrates that one of the reasons we fail to learn has nothing to do with good or bad teaching; it has to do with how we think. How we learn has a lot to do with our mind's thirst for understanding. We are driven by natural curiosity, and surprisingly, as the video demonstrates, our curiosity works against learning!

A bright high school student diagrams her views on the seasons and the changing shapes of the moon. She soon learns that her theories—pieced together from her own observations—are incorrect. Yet even when she's given correct information, she can't let go of all the previous ideas from her private universe.

5 Encourage them to ask and answer their own questions. Help them break