

Celebrating Your Cosmic Age

Author unknown

"LET ME TELL YOU A STORY:

In the beginning, when the UNIVERSE was born, there was a sudden flash of very very bright and very very hot light. It was like an EXPLOSION, but brighter and more powerful than any explosion you or I have ever seen—or even could imagine. Scientists tell us that this explosion was the beginning of the UNIVERSE.

Q: Does anybody know the name that scientists call this explosion? ["The Big Bang"]

- "Yes! 'THE BIG BANG'. Others like to call it 'THE GREAT RADIANCE' because this was the moment when everything would start expanding outward in all directions, like light radiating outward from the flame of a candle or a lightbulb or from a star. Both names, THE BIG BANG and THE GREAT RADIANCE, mean the same thing. They mean the time when the Universe was born."

Q: "Was PLANET EARTH already in existence when the Universe was born?" [No.]

Q: "How about our SUN?" [No]

Q: "Were there any HUMANS alive then?" [No.] Any DINOSAURS? [No.] "Why not?" [Let them discuss.]

- "There were no humans, no dinosaurs, not even stars in the beginning, because it all took time for them to develop—just like it takes time for a flower to grow from a seed. This is called EVOLUTION."

- "Okay. Back to our story: So when the UNIVERSE was born, all there was in the beginning was just ENERGY: the energy of HEAT and LIGHT. Then, when the energy of the

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explosion started to cool, some of the energy cooled into
PARTICLES even tinier than atoms. And then some of those
tiny particles came together to form ATOMS."

- "Now here is how HYDROGEN comes into our story.
HYDROGEN is the simplest of all atoms. It has the fewest
parts in it, and so it is the smallest of all the atoms. So the
Universe cooled mostly into a whole lot of HYDROGEN atoms
and not much else. Not a single atom of OXYGEN was
formed at that time, because oxygen is too complex. Not a
single atom of CALCIUM formed back then. Not a single
atom of GOLD formed then either. Almost nothing except
HYDROGEN was born when the Universe began to cool."

- "Now here is the amazing thing: Every single atom of
HYDROGEN in water and in your bodies—right now—came
into existence when the ENERGY from the birth of the
Universe cooled into atoms. So those atoms are very very
OLD."

**Q: "Exactly how old are they? Does anybody know how OLD
the Universe is and, therefore, how old HYDROGEN atoms
are?" [14 billion years old; (actually 13.7, but round off to 14)]**

**Q: "14 billion years old! Is a billion more than a million?"
[yes] "Lots more!"**

**Q: "So if the Universe is 14 billion years old, and if all the
HYDROGEN atoms in this glass of water are as old as the
Universe, how old are they?" [14 billion years old]**

- "Now, here is the amazing thing: Remember when we
talked about how our bodies are mostly made of WATER?
And water is mostly made of HYDROGEN because each atom
of OXYGEN has 2 atoms of HYDROGEN stuck to it?" Hold up
the diagram of a water molecule.

- "So. If the atoms inside YOU are mostly WATER, and if WATER is mostly HYDROGEN, and if those HYDROGEN atoms are all 14 billion years old, then how old does that make you?" [The children will mostly be silent, in a trance, so look at them intently in silence before continuing.]

- "I 'll give you an example. You may think I am kind of old Stardust Curriculum, version of January 2010 7 because I am XX years old. But that is just my HUMAN AGE. All the hydrogen atoms inside of me are as old as the Universe; they are 14 billion years old. In a way, I 'm really that old too!"

- "Let 's call the part of each of us that is 14 billion years old our 'COSMIC AGE '. COSMOS is another name for 'the Universe ', and so COSMIC AGE is a good name for talking about the parts of our bodies that are really, really old. All the hydrogen atoms inside of us are just as old as the Universe is, because we are made of particles that were born when the Universe was very very young."

- **"So a complete description of my own age is my COSMIC AGE plus my HUMAN AGE."**

- **Pick up the chime or bell and say in a ceremonial voice:**

- "My name is _____, and I am 14 billion and XX years old!"

- Ring the chime.

Q: "Does anyone else want to say out loud what their own Cosmic Age plus Human age is?" [Wait for a volunteer.]

- "Good! So _____ is 14 billion and YY years old!" Ring the chime.

- "Each and every one of you also has a combined COSMIC and HUMAN age.

Q: Does anyone else want to try saying theirs?"
[Encourage several examples, and ring chime after each.]

CONCLUDING CEREMONY: "Celebrating Your Cosmic Age"

1. Decide on a spatial format: all sit on the carpet in a circle, or invite children to come forward and stand by you one at a time and make their announcement.
2. Introduce the ritual format, by saying that each of us will have a chance to say, "My name is _____, and I am 14 billion and X years old!"
3. Note: After each ritualistic announcement, you will hand the CHIME or bell to the child to ring.

NOTE: Find a way to encourage the children to get into a ceremonial mood. You might do this by lighting a CANDLE, or begin by asking the children what a ritual or ceremony is, and for examples of such. Emphasize how these are serious occasions, and silence is important to make it feel a little bit magical.

POSSIBLE SONG to teach at the conclusion of the ceremony (create your own gestures for it, or ask the kids to suggest a gesture for each subphrase). And then sing it over and over several times.

Song:
I am as old as the Universe
You are as old as the Universe
We are all one.

Click to LISTEN to an audio of the song at
<http://thegreatstory.org/songs/old-as-the-universe.mp3>