Einstein First

How to make gold!

Narrator (inviting all the characters to the stage and introducing): *"The Year 3 class of Mel Maria Primary School just did a program on Einsteinian physics. They are going to tell you how physicists discovered how to make gold. Before we start, I want to introduce you to the cast.*

"This is Isaac Newton. He made the first theory of gravity."

"This is Albert Einstein. He is probably the greatest physicist of all time. His theory of gravity has never been surpassed."

"This is Robert Oppenheimer. He predicted that stars could collapse into tiny balls of neutrons called neutron stars. He was the father of the atomic bomb,

"This is Jocelyn Bell. When she was a student she discovered beeping stars called pulsars."

"This is Tsvi Piran. He is the scientist who first worked out how gold could be made.

And we have five young scientists. (Kid 1,2,3,4 and 5)

Newton (in a discontented mood): "*I wasted years trying to discover how to make gold. Making my theory of gravity was easy! But I never managed to work out how to make gold."*

Einstein (very confidently & proudly): "*Your theory of gravity is wrong Mr. Newton. You said that gravity can travel faster than light, But nothing can travel faster than light. That's why your theory is wrong"*

Oppenheimer (appreciating Einstein): *"Thank you Albert for explaining that. It was your theory that let me predict stars made of neutrons."*

Kid 1 (curiously): *"Stars made of neutrons? Neutron stars! That's crazy! Neutrons are teeny weeny things inside atoms!"*

Oppenheimer (continued): *"No. He's right. Crush all the atoms together and you are left with neutrons. Crush a star and you get a ball of neutrons the size of a city. A teaspoonful as heavy as a mountain."*

Kid 1 (perplexed and confused): *"You couldn't have stars as weird as that"*

Jocelyn Bell (excitedly & loudly): *"You certainly can! I discovered the first neutron star. It gave out pulses like….beep…beep…beep…beep. First we thought it was a message from space but it turned out to be a spinning neutron star"*

Tsvi Piran (proudly & loudly): *"Yes. She is right. But I want to tell you something amazing. If two neutron stars collide they make gold!"*

Kid 1 (again perplexed and confused): *"How could balls of neutrons make gold?"*

Oppenheimer (excitedly): *"I can answer that. When the stars collide, blobs of neutrons get thrown into space. Then they explode like an atom bomb. Brighter than thousand suns."*

Kid 1 (not convinced): *"Still I don't understand. It doesn't explain how gold is made."*

Tsvi Piran: *"I know…I can explain it, Some neutrons break up into protons and electrons, and these make new atoms that are full of lots of neutrons, like gold and platinum and lead.*

Kid 1 (amazed and not-convinced): "*Hmmm….I suppose it makes sense."*

Kid 2: *"You know…these neutron stars must have really strong gravity if they are so heavy and so tiny. Wouldn't that make lots of gravitational waves.*

Kid 3&4 (loudly and excitedly): *"Yes…yes....We are the neutron stars. We are caught in each other's gravity"*

Kid 5 (excited and nervous): *"Hey..I can feel gravitational waves...Is it because of the spiralling neutron stars?"*

Kid 3&4 (excitedly and spiralling into each other): *"We are falling into each other. The gravitational waves are sucking away our energy".*

All the participant make a long slow chirp as the kids continue to spiral closer
"wooooooooooooooooooooop"

Stars collide and burst

Gold sweets fly out

Everyone shouts "Gold! Gold! Gold!"

*****end of role-play*****