

Outreach project: "Colliding children"

audience: primary/secondary school classroom

aims:

- familiarise with the standard model particles
- concept of particles collision
- introduce them to feynman diagrams

lesson plans:

1st block (30 mins): "Standard model guess who"

build the standard model. A teacher shows the empty standard model table.

Each child has a card with particle properties with no particle name (mass, charge, interaction)

The teacher starts looking for a "massive" particle, and all the children with this property stand up and run forward. continue with all the other properties, eventually you get a single particle and the children get the name of their particle. And we fill in the SM table with the children names.

2nd block (30 mins): "SM (Simon) says"

play with the particles. tell them how they should act: "run on one side of the room if you are positive, go on the other side if you are negative"

"electrons and positrons, find each other!"

"electrons and positrons, find a photon!"

3rd block (20 mins): "Collision chaos"

introduction to feynman diagrams. explain what it is

split the classroom in two teams

they need to reproduce feynman diagrams for real ----> real collisions

the team who reproduces the diagram first wins a point

play with some diagrams (different interactions)

logistics:

3 people (any particle physicist who knows the SM)

materials:

make the cards

slides to explain the SM

particle stickers (and they keep the sticker)

hats? (depending on the budget)