

Outreach project "A window on the invisible"

Topic: Standard Model

Target: 11-12 year olds

Duration: 1 hour

Method: Talk (at a level of detail that allows them to understand and allows you to make an impact), Visuals (Slides, laminated printed pictures), Props

1. Introduce particle physics: size, particles
2. Explain what they do
3. Lagrangian, forces
4. Detection. Laser and t-shirt exercise
5. They can ask questions throughout, but also dedicated Q&A at the end

PART 1:

Start from the beginning: Sun → Eiffel Tower → Leptons and Quarks, bricks of matter

-> Main takeaway, the entire observable world is mostly made of 3 main bricks.

Example: order pictures from what you think is biggest to smallest

PART 2 and 3:

What keeps them together? Lagrangian: from formula to pictures in the formula

PART 4 Concept of: how you detect

Feasibility:

- Effort to prepare: 10 laminated pictures (so you can easily reuse them, they won't break) for part 1
- Slides/Blackboard for parts 2 and 3, also laser (different colors)
- Colored tops/bibs for part 4
- 50£ for the material

To be safe, 1 day of work to prepare