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P05 - Communicating Astronomy and Planetarium Lectures to Children with Autism Spectrum Disorder

Monday, 23 November 2026 11:30 (30 minutes)

Introduction

Planetarium environments—dark domes, sudden loud sounds, abstract celestial motions—can overwhelm children with ASD due to sensory sensitivities and preference for predictability. However, astronomy's visual and pattern-based nature also offers unique engagement opportunities. This discussion outlines four practical communication strategies to make planetarium lectures accessible, meaningful, and enjoyable for learners on the spectrum.

1. Pre-Visit Priming: Replace Surprise with Structure

Children with ASD often experience anxiety from unknown settings. Before the lecture, provide:

· Visual schedules showing the planetarium sequence (enter → sit → dark → stars → story → lights up).
· Social narratives with photos of the dome, projector, and seats.
· Sensory maps indicating "loud parts" or "quiet exit zones."
· Concrete vocabulary cards (e.g., "orbit = a path around a ball").

1. Sensory-Friendly Lecture Delivery

Modify the traditional planetarium format:

· Gradual transitions – dim lights slowly instead of sudden blackouts.
· Adjustable audio – lower volume, remove unexpected sound effects (e.g., rocket launches).
· Permission to regulate – allow fidget tools, sunglasses, or a designated "cool-down corner" without stigma.
· Avoid abstract analogies – instead of "as big as a million Earths," use physical contrasts ("Saturn could hold 760 Earths like this basket holds beans").

1. Communication Techniques for Concept Clarity

Many children with ASD process literal, concrete information best. In the dome:

· Break time into segments – after 10 minutes, turn on low blue light and recap with hand gestures.
· Use repetitive verbal cues – "Look up – now we see the North Star."
· Pair every celestial event with a tactile or kinesthetic action – "When I say 'spin,' turn your chair slowly – that's Earth's rotation."
· Limit metaphoric language – replace "the Sun is a giant ball of fire" with "the Sun is a very hot, glowing sphere of gas."

1. Embedding Special Interests & Predictable Routines

Leverage common ASD strengths: pattern recognition, detail focus, and intense interests.

· Offer interest-based versions – a "Train Constellation" tour or "Planet colors" focus for a child fascinated by colors.
· Use the same opening ritual each time – "First, lights fade. Second, three blinking stars appear. Third, we count down: 3-2-1 – dome."
· Provide a visual check-sheet of things to find (e.g., "Find the red dot – that's Mars").

Conclusion

Communicating astronomy to children with ASD does not require simplifying the science; it requires adapting the delivery to respect sensory and cognitive needs. By using priming, sensory modulation, literal language, and structured routines, planetarium educators can transform potential distress into genuine discovery. These strategies align with universal design principles—benefiting all learners while making astronomy truly inclusive.

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