

Early Years Investment *Creating a Smart Australia*

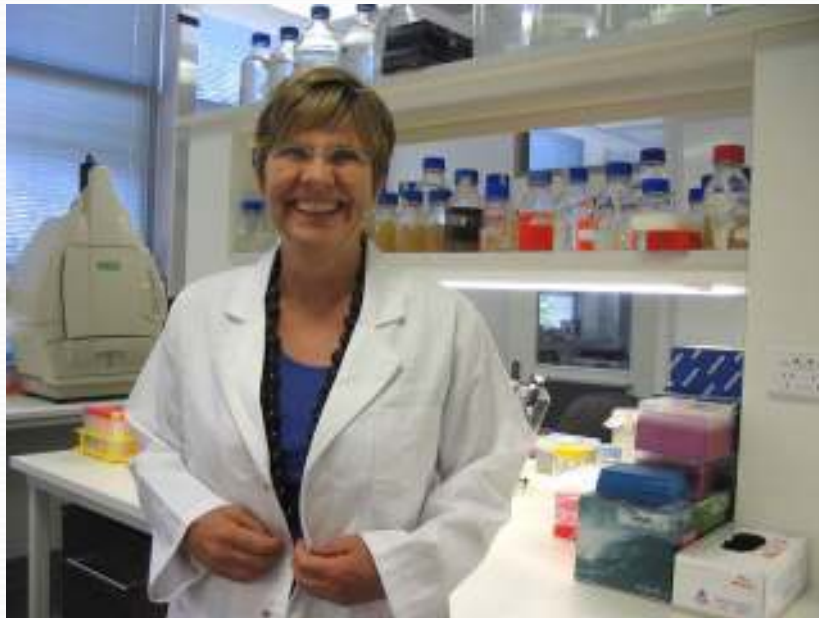
Professor Lyn Beazley AO
Chief Scientist of Western Australia



GOVERNMENT OF
WESTERN AUSTRALIA

Chief Scientist of WA

Facilitator – Advocate – Advisor



- **WA Science and Innovation Council**
- **Report to Minister for Science and Innovation**

Science is Essential for Sustainable Development



**Need scientists, technologists,
engineers and mathematicians (STEM)**

Do Science

Best People, Best Infrastructure

“Build on our Strengths and meet our Needs”



**Nobel laureates: Professor Barry
Marshall and Professor Robin Warren**



Professor Fiona Wood

Translate Science

For sustainable development



Communicate Science



To Media



To Primary schools



To Pre-primary



To Politicians



To Secondary schools

I've met the
Western Australian
Chief Scientist
Lyn Beazley



Keep up with the activities of Prof. Beazley at:



www.sciencewa.net.au



Department of
Industry and Resources

www.doir.wa.gov.au



www.scitech.org.au

Education Working Party

- **Dr Pam Garnett (Chair)**

(2003 Prime Minister's Prize for Teaching Excellence)

- **Alan Brien (Scitech)**

- **Chris Cook (Dept Educ. Training)**

- **David Wood (Curriculum Council)**

- **Prof Lyn Beazley**

- **Prof Alan Robson**

- **Prof Julian Gale**



Science Education is Critical: Impact on Australia's Economy

WORLD
ECONOMIC
FORUM

COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

- Annual report on global competitiveness



- 12th for quality of educational system



- Australia 29th for the quality of maths and science teaching

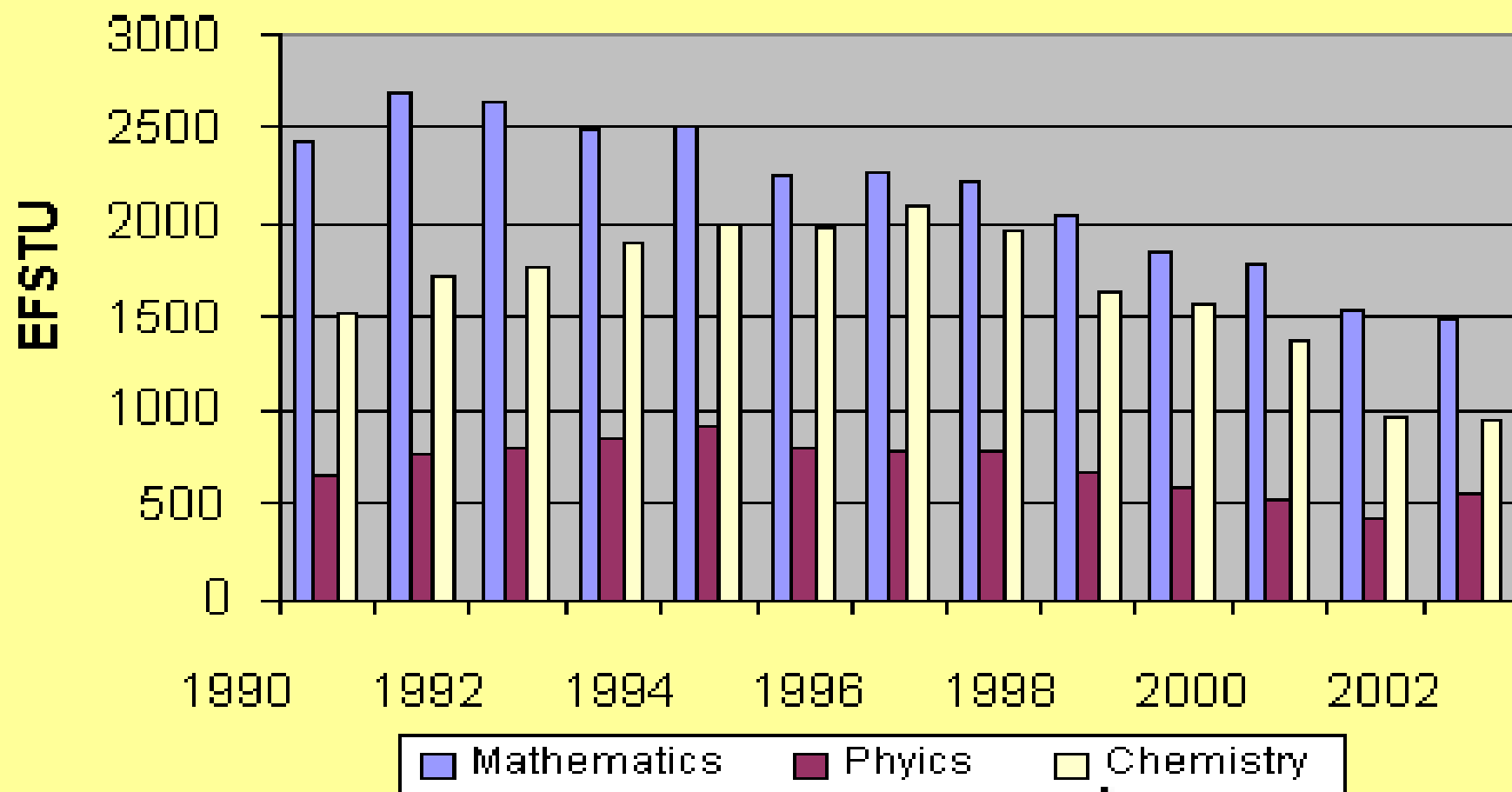
Primary Schools: Alarm Bells

Science instructional time - 41mins per week
(2.7% of class time)



(Trends in Int. Mathematics and Science Study 2007)

Undergraduate enrolments



Recruiting the Next Generation Starts Early



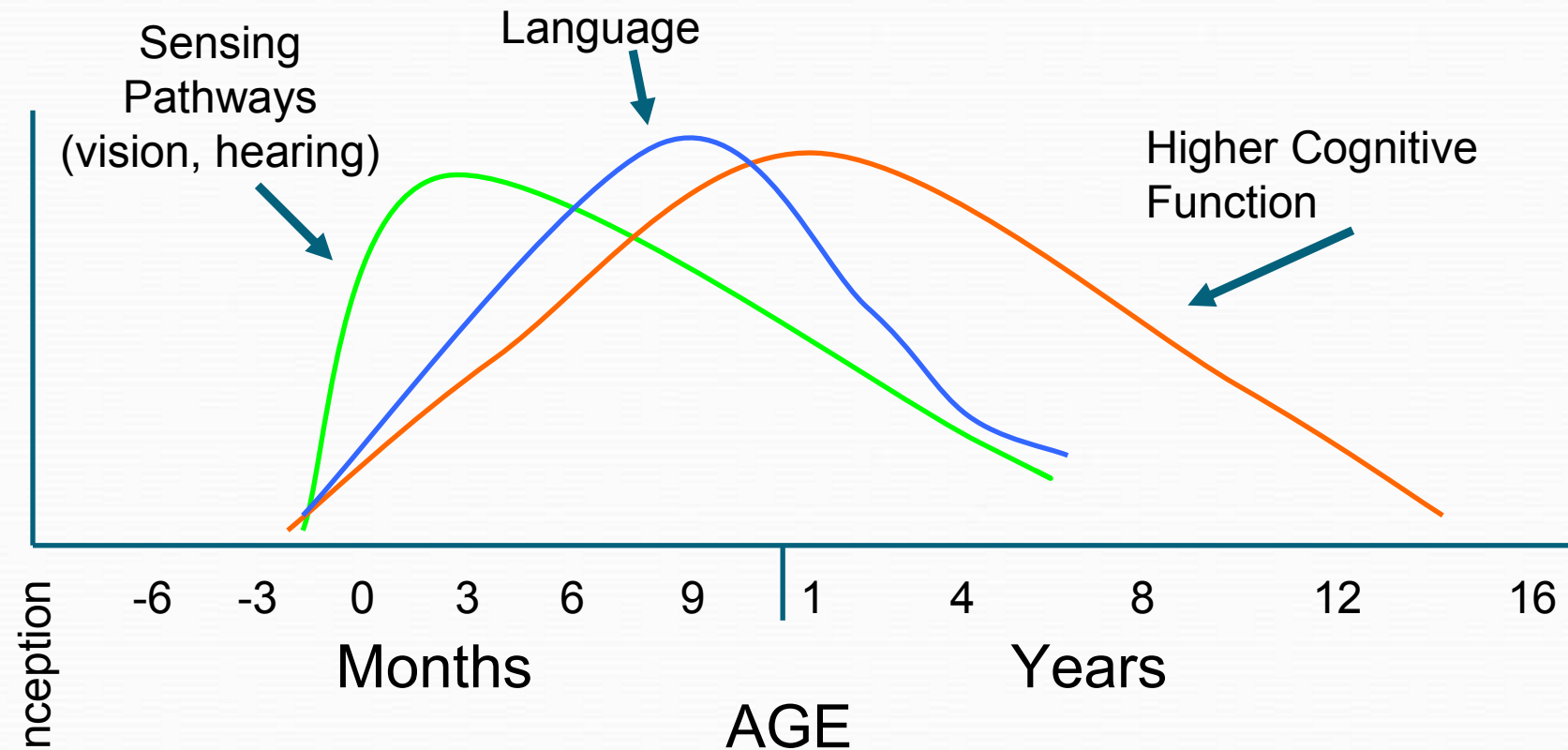
Why Invest in Early Childhood?

- Human capital is a key factor for economic growth
- Strong link between child brain development, life course and economics of human capital formation
- Council of Australian Governments (COAG)
 - Reform for early childhood education
 - National Early Years Learning Framework



Human brain development

- adding new synaptic connections

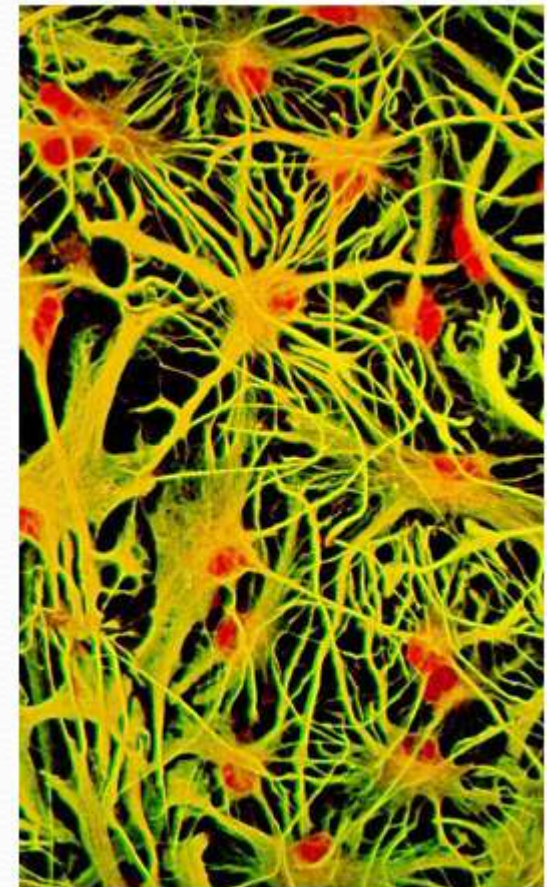
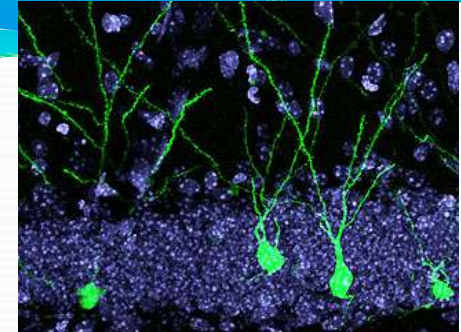


C. Nelson, in *From Neurons to Neighborhoods*, 2000.

Brains are built over time

Foundations are crucial

- Higher level circuits built on basic ones
- “Skills beget skills” - development of higher order skills is much more difficult if lower level circuits are compromised
- Plasticity decreases over time, much harder to alter later
- Pruning of circuits that are not used
- Best to get it right the first time!





Australian Early Development Index

- A population based measure (developed in Canada)
- Information about children's health and wellbeing
- 100+ questions covering
 - language and cognitive skills
 - emotional maturity
 - physical health and well-being
 - communication skills and general knowledge
 - social competence
- Teachers complete AEDI on each child in 1st year of full-time schooling
- Results by postcode, suburb or school level

**Sharing excitement of science
with young minds will build a
better, more healthy and wealthy
Australia for all**



Why science?

- **Because every child is curious about the world around them**
- **We need more scientists, technologists, engineers and mathematicians**

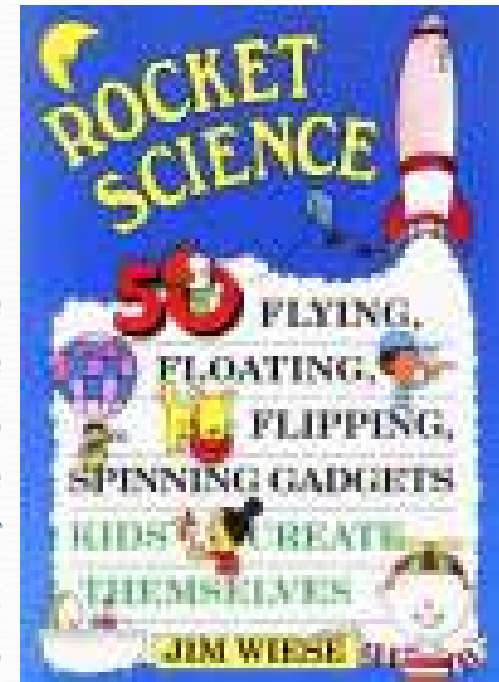


How?

- Inform and empower parents, care givers and pre-school teachers
- Provide facilities to reinforce the message



Styrofoam plate
Toilet paper tube
Markers
Tape
White camera film canister
Vinegar and baking soda
or alka-seltzer tablets





**WA Government funding
for next 5 years (\$42M)**

**“I had to drag the kids
out as they were closing”**

Toddler Week @ Scitech



**Sponsors of Scitech programs:
Chevron, BHP-Billiton, Rio Tinto**



Why Not ? Toddler-Fest Australia

Roll out in all States and
Territories Take to Rural and
Remote sites





- **Innovative approach to teaching/learning**
- **Enhance primary school teachers' confidence & competence to teach science**
- **Boosted by \$4.4M in July 2008**





Why Not ?

Pre-PrimaryConnections®

- Innovative approach for pre-schoolers
- Enhance pre-primary professionals' confidence & competence to share science





Skids Day STAWA



Roger Harris



WHY NOT
**Establish an early
education component?**

Acknowledging teaching excellence



- Premier's Science Awards for primary, secondary and tertiary sectors



Why not extend to include pre-primary?



Premier's Award for 2008: Richard Johnson
Science Support Teacher, Rostrata Primary School

Supporting teachers



- Access professional development at UWA
- Have first access to curriculum resources
- Build a long-term relationship with researchers
- Teacher in residence scheme

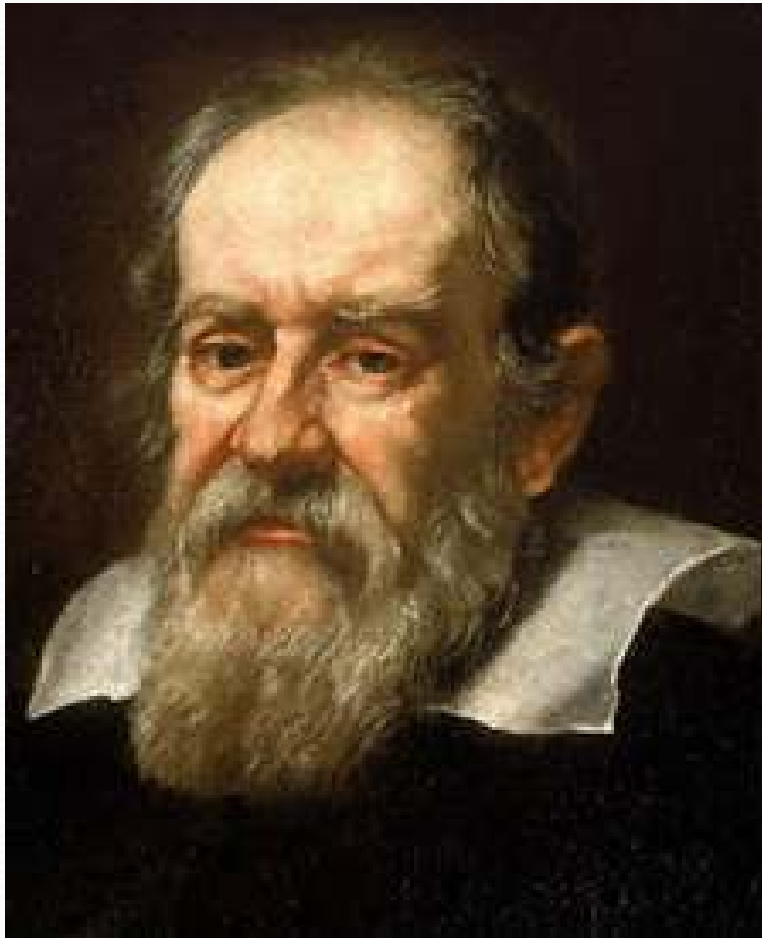


Why Not include pre-primary?



Prof Alan Robson, Vice Chancellor of UWA, presenting Chris Booth, Principal of Willetton SHS with a SPICE plaque

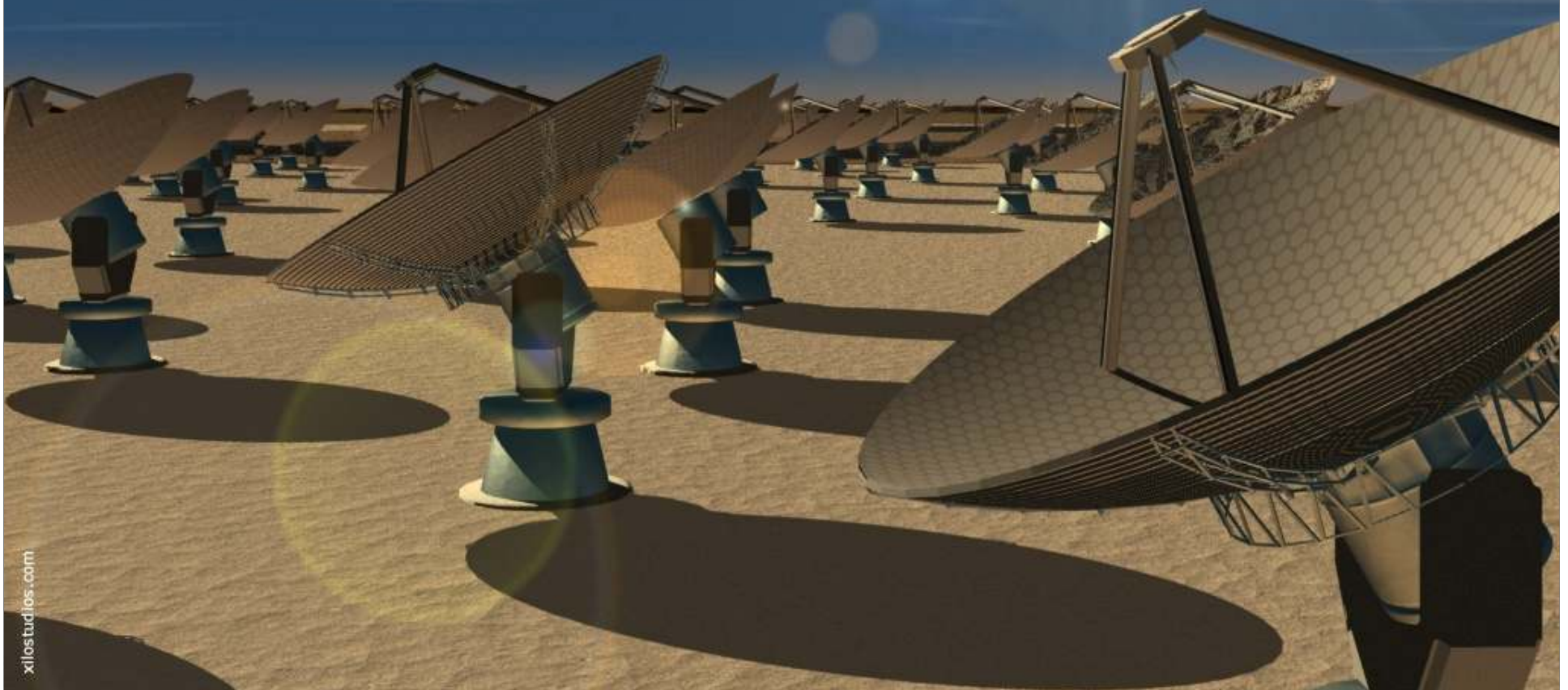
2009: Year of Astronomy



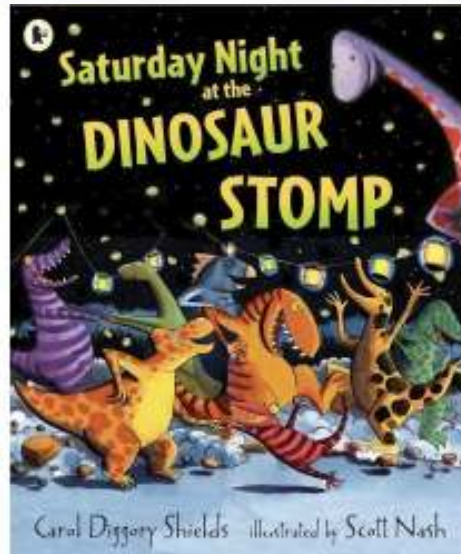
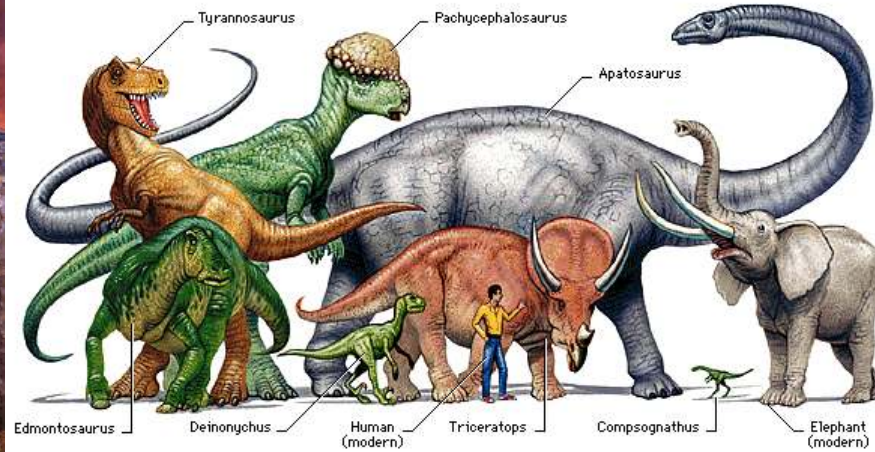
25 August 1609



Square Kilometre Array







Invite posed the question:

Q: Early education is important. What is Australia doing about it?

A: Lots but can do much more by changing the mind-set about when education starts

Message: Day 1 not first day at TAFE or Uni, nor at secondary school nor even at primary school.

It is the day of birth.

