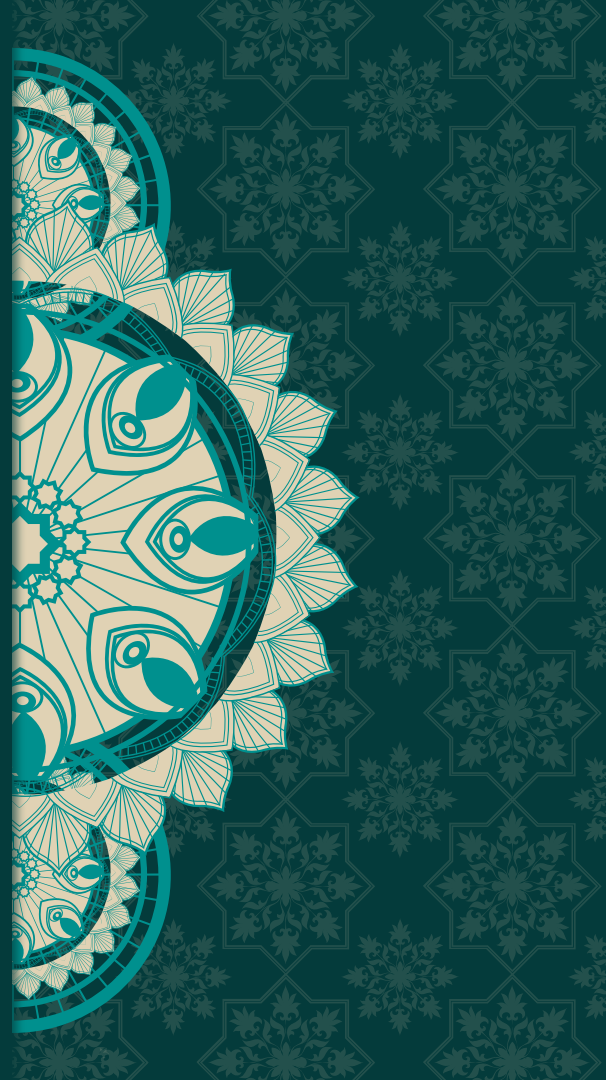




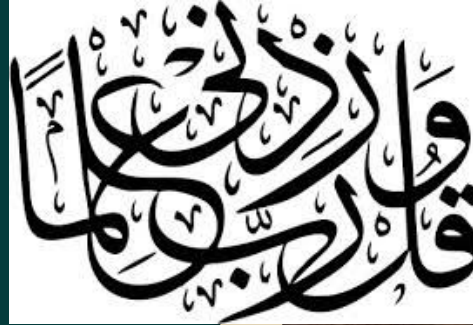
Continuing the Legacy by Laying the Foundation:

The Importance of
Secondary Science
Education



“And say ‘O my
Lord! Increase
me in
knowledge””

*Holy Qur'an - Surah
Taha, Verse 115*



A Muslim's Quest for Knowledge

The Holy Prophet Muhammad (saw) said:

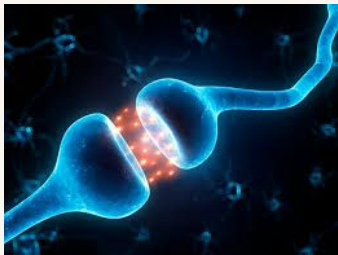
- *“Seek knowledge from the cradle to the grave”*
- *“For him who adopts a path seeking knowledge, Allah eases the way to paradise and angels spread their wings for a seeker of knowledge, being pleased with his occupation, and all that are in the heavens and the earth, including the fish in water, ask for forgiveness for a learned one. A learned one is superior to a worshipper as the moon is superior to all the planets.” - Abu Daud and Tirmidhi*
- *“The acquisition of knowledge is obligatory upon every Muslim man and woman”*



The Tender Years



- Two critical stages of learning and human development:
 - Early childhood (0-10 years) – major period of brain plasticity
 - Adolescence (10-24 years) – second major period
- **Brain plasticity**: the ability of cells of the nervous system to change
 - Connections between neurons
 - **Neurogenesis**: formation of new neurons



Impact of Secondary Education

- Research indicates that early adolescence (12-15 years/grades 7-9) is a critical time period for motivating and influencing students to become interested in a STEM career
- Students of this age should be the most exposed to various scientific careers and should be engaged in various activities that stimulate their curiosity
- Early interest in STEM topics can be a good predictor of eventual career choice
- In one study, 88% of parents believed they can help guide their child's learning but only 28% actually discuss the value of a STEM education with their children ¹

The grades 7 through 9 years (12-15-year-olds) are the key time period for influencing STEM career interest and for building this self-efficacy with respect to mathematics and science.

1- Blotnicky, K.A., Franz-Odendaal, T., French, F. *et al.* A study of the correlation between STEM career knowledge, mathematics self-efficacy, career interests, and career activities on the likelihood of pursuing a STEM career among middle school students. *IJ STEM Ed* 5, 22 (2018).

Adolescence: Middle and High School

- Body and brain experience significant changes → critical period for learning and risk
- Brain prepares for adulthood → environment has a strong influence on development
- Students need opportunities to develop deeper learning:
 - Problem solving
 - Critical thinking
 - Higher order thinking
- Develop to their fullest potential: needs should be considered



Maslow's Hierarchy of Needs

This model has its limitations but demonstrates the various needs of a human being

Needs may not always follow this order



Nobel Laureates and High School Affiliation

- Bronx Science High School - New York City, NY (8)
- **James Madison High School** - New York City, NY (8)
 - *Not a specialized high school*
- Phillips Academy - Andover, MA (5)
- Stuyvesant High School - New York City, NY (4)

How can parents nurture development?

Read

A daily routine of reading to your child from the early years

01

Be Involved

Communicate with teachers and administration regularly

02

Mindset

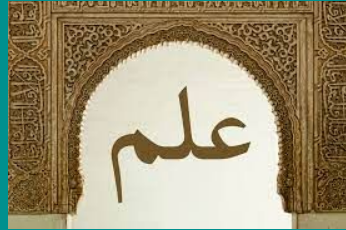
Encourage your child to have a growth mindset → they can learn anything

03

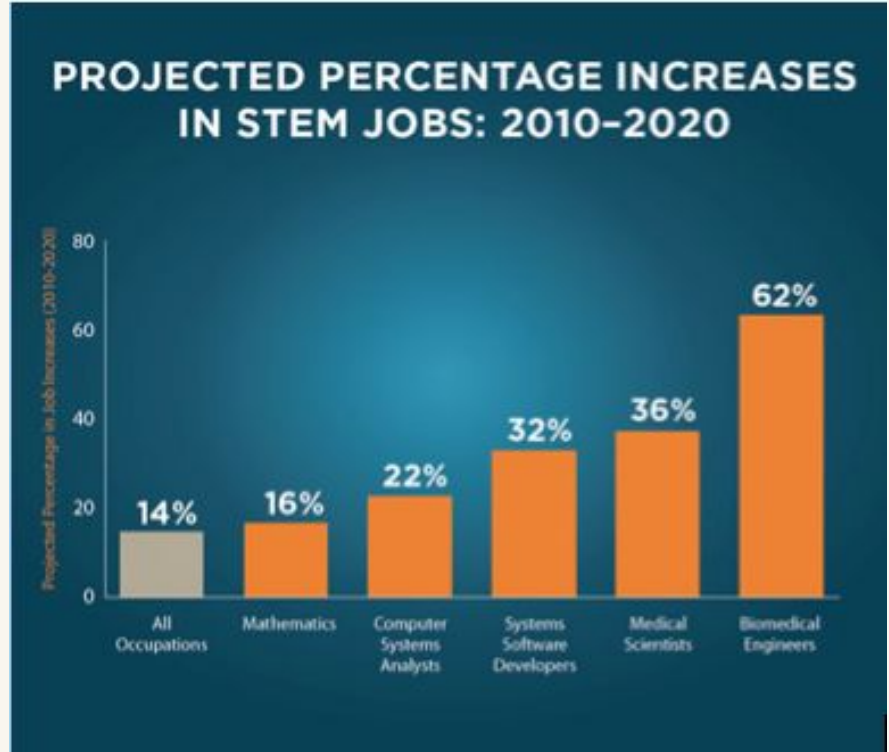
Support Studying

Have a place where your child can study, review notes, and have a homework schedule

04



Importance of STEM education



Avail the Opportunities

**“Young people should work hard
and take things as they come.”**

–Nobel Laureate Dr. Richard Taylor

- Take coursework that aligns with interest (AP classes, electives, PLTW classes, capstone)
- Take part in extracurricular activities: sports, clubs, internships
- Explore research opportunities at the high school level:
 - Many colleges offer programs specifically for [high school students](#)

“You must only pursue those avenues that are for the benefit of humanity and which are according to the limits prescribed by Allah the Almighty. Always remember that to stay within the confines of the Holy Qur’an is the hallmark of a believer. If you conduct your work in this way, you can achieve great things and revive the once distinguished reputation of Muslim scholars and academics.”

Our Beloved Imam, Hadrat ★
Khalifatul Masi V (atba) ★



Jazakallah