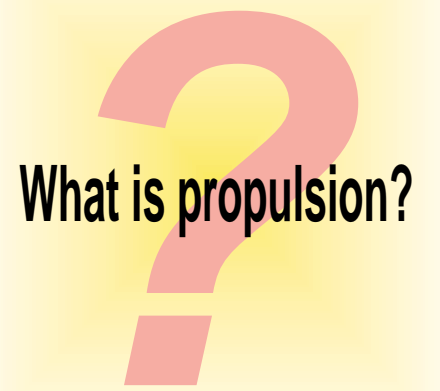


Newspaper in Education Presents

inquizi kidz

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kidzbiz

Team Effort

Shelby McCoy, seventh grade technology student and current Technology Student Association (TSA) president at King Middle, went head-to-head last year with her brother, Josh McCoy, at the TSA Flight Challenge event at the state level. The event involved the students competing to build a model glider that would surpass others as they propelled through the air. Shelby's logged flight times of 4.4, 4.7 and 5.1 proved superior to those of her brother. Shelby takes extreme pride in this victory as her stepfather, in the construction field, helped Josh by providing building tips for his glider. Josh will play an integral role in TSA at Manatee High School this year. TSA Flight Challenge is an event that students in Mr. Baldwin's classes are involved in on a regular basis. Students work in teams of two to come up with designs on paper, then transform their pencil drawings to a real model. One of the things Shelby really enjoys about his class is being challenged to solve problems. She was so excited about the challenges posed while in the wheel class that she signed up for Mr. Baldwin's second semester class and has returned this year. "I love competition!" says Shelby. She is also a member of the All Star cheerleading team that travels the state competing.

school biz

Hands on

Put the power of technology education in the hands of the students. That is the philosophy of John Baldwin, Technology Education Teacher at King Middle School. When you enter John's classroom, expect to find students on an array of equipment. No, you won't see students in neat little rows working on a word processor assignment. You will see students involved in a variety of applied technology as they solve real-world problems working in teams. One team may be working on programming a computer to cut a piece of vinyl for a sign while another may be stationed at the flight simulator learning about the forces that allow flight, such as lift, drag, thrust, and weight. Two or three may be preparing for an upcoming robotics competition for the Technology Student Association (TSA) while still another is researching structural engineering on the Internet for a scale model design presentation due at the end of the week. Things are always moving at light speed according to John. Students love to work in teams helping each other find solutions to everyday real-world problems. Our society is so technological that students feel right at home when poised with hands-on, minds-on problems to solve. An integral part of John's classroom involves his leadership with his Technology Student Association (TSA). John assumed the role of advisor for the TSA Chapter when he came to King two years ago. Students have learned and grown in the areas of technical knowledge, self-esteem, leadership, communication and teamwork by being active TSA members. John is constantly eager to learn. He attends many technology education in-services and takes every chance he gets to learn and bring the information back to his students. For the past two summers John has taken part in a unique program for educators provided by the Adult, Career and Technical department called Teachers in Industry for Educational Support (TIES) which works with local technology businesses to bring back to the classroom relevant skills required in today's workplace. John is an outstanding educator in the field of technology education and is among the first to challenge the students at King Middle with the newest inventions and innovations that hit the market place.



John Baldwin

pro meaning before or forwards and pellere meaning to drive

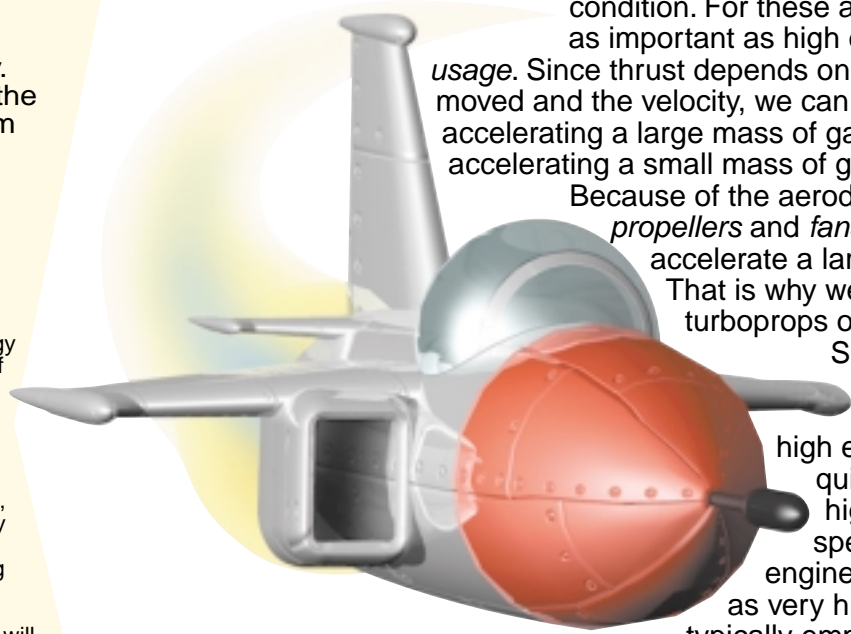
Propulsion

With the growing importance of the technology in our society, it is vital that students receive an education that emphasizes technology literacy. Technology Education is the propulsion behind the content for this challenge.

What is propulsion? The word is derived from two Latin words: **pro** meaning before or forwards and **pellere** meaning to drive. Propulsion means to push forward or drive an object forward. A propulsion system is a machine that produces **thrust** to push an object forward. On airplanes, thrust is usually generated through some application of Newton's **third law** of action and reaction. A gas, or **working fluid**, is accelerated by the engine, and the reaction to this acceleration produces a force on the engine.

A general derivation of the **thrust equation** shows that the amount of thrust generated depends on the mass flow through the engine and the exit velocity of the gas. Different propulsion systems generate thrust in slightly different ways. We will discuss four principal propulsion systems: the **propeller**, the **turbine (or jet)** engine, the **ramjet**, and the **rocket**.

Why are there different types of engines? If we think about Newton's **first law** of motion, we realize that an airplane propulsion system must serve two purposes. First, the thrust from the propulsion system must **balance** the drag of the airplane when the airplane is cruising. And second, the thrust from the propulsion system must **exceed** the drag of the airplane for the airplane to accelerate. In fact, the greater the difference between the thrust and the drag, called the **excess thrust**, the faster the airplane will accelerate. Some aircraft, like airliners and cargo planes, spend most of their life in a cruise condition. For these airplanes, excess thrust is not as important as high engine efficiency and low **fuel usage**. Since thrust depends on both the amount of gas moved and the velocity, we can generate high thrust by accelerating a large mass of gas by a small amount, or by accelerating a small mass of gas by a large amount.



Future hypersonic aircraft will employ some type of ramjet or rocket propulsion.

Because of the aerodynamic efficiency of **propellers** and **fans**, it is more fuel efficient to accelerate a large mass by a small amount. That is why we find high bypass fans and turboprops on cargo planes and airliners.

Some aircraft, like fighter planes or experimental high speed aircraft require very high excess thrust to accelerate quickly and to overcome the high drag associated with high speeds. For these airplanes, engine efficiency is not as important as very high thrust. Military aircraft typically employ **afterburning turbojets**.

explore it pt 2

Test your jet.

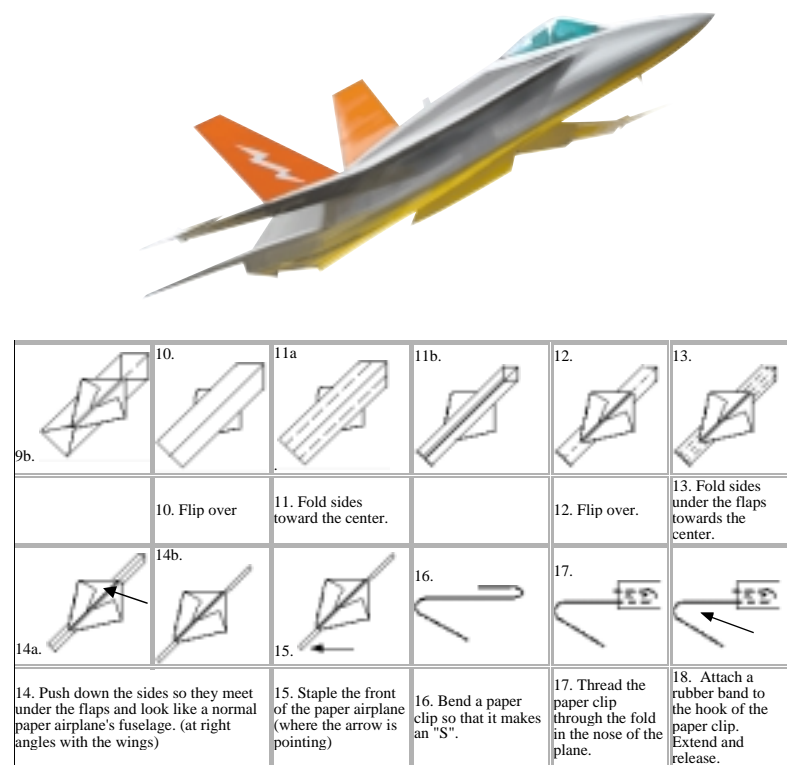
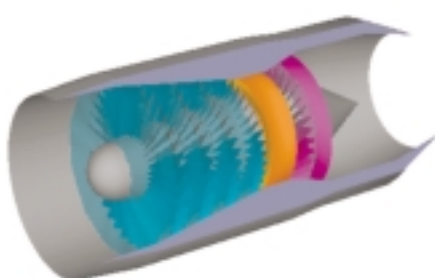
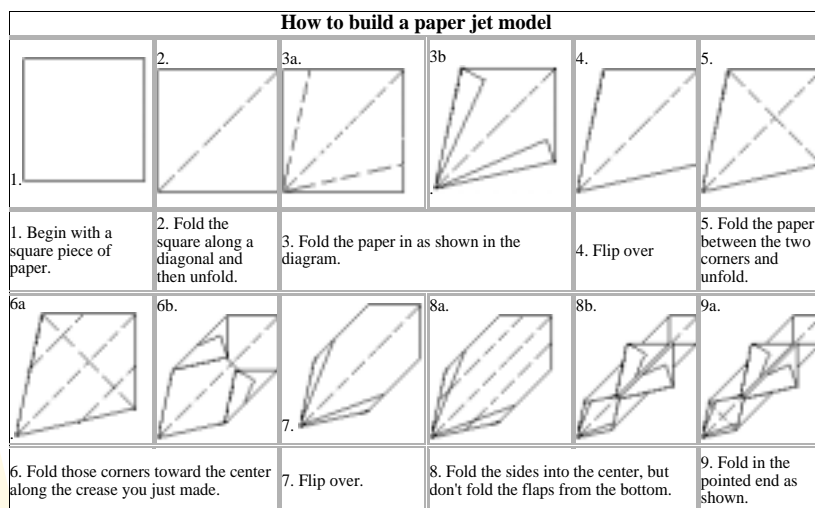
Make a team of family members and test your jets. Before conducting the following tests, predict what you think will happen. Watch the jets carefully to answer the questions below. Test the jets several times to see if they always perform in the same way. Write what you see on a piece of paper.

- Which one can fly in a straight line?
- Which one can fly the longest distance?
- Which one can stay in the air the longest?
- Which one can fly the highest?
- Which one can fly the fastest?
- How can you make your jet better?
- Will adding weight (such as a paper clip or a penny) make it fly better or worse?
- Does it matter where you put the extra weight?
- Do larger jets fly better than smaller jets?

Discuss your answers with your family members.



explore it pt 1



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King Middle School
Ballard Elementary Magnet
Daughtrey Preparatory Magnet
Harlee Middle Magnet
Johnson Middle Magnet
Lee Middle Magnet



Haile Middle School
Lincoln Middle Magnet
Manatee Elementary Magnet
Rowlett Elementary Magnet
Tillman Elementary Magnet
Wakeland Elementary Magnet

Schools listed in red offer instruction in the subject area featured in today's InquiziKIDZ

Next Weeks Inquizikidz - What family do Doonesbury, Peanuts, and the Flintstones all belong to?



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