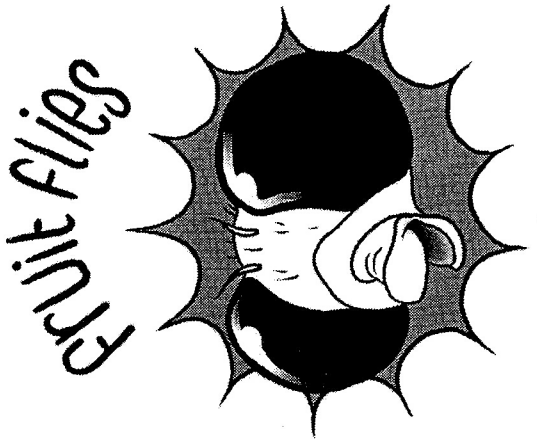
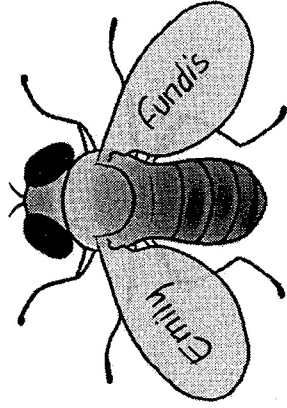


# SCIENCE &



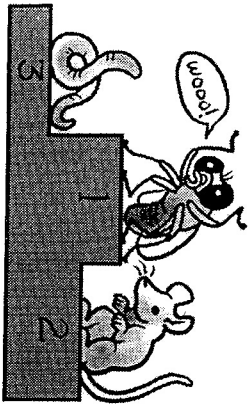
## FRUIT FLIES

The Small Science Collective  
www.smallsciencezines.blogspot.com



2010

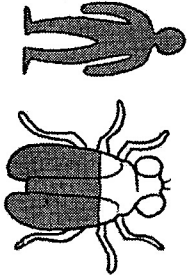
Common fruit flies (*Drosophila melanogaster*) are one of the most frequently used "model organisms" in genetic research.



So what makes them such ideal subjects? Well, they're ...

- Easy to manipulate genetically
- Cheap
- And they have short life spans

What's more, over 60% of fruit fly genes are similar to a human's.



We're really quite similar if you look past our physical differences! They have complex rituals of behavior, they have sleep cycles like us, and they can become addicted to caffeine, cocaine, and other drugs.



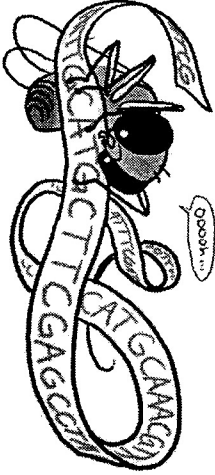
the "college" fly, pictured here.

But all-in-all, something this small has been used to study things as big as cancer, drug abuse, aging, memory loss, developmental disorders, neurological disorders, and even sexual orientation.

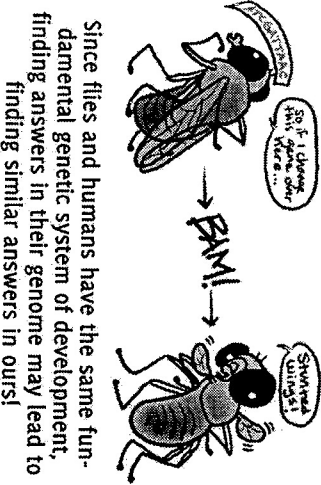


We've only been studying fruit flies in-depth for about a century, and there are still big questions that have yet to be answered.

How can they be used to study humans?

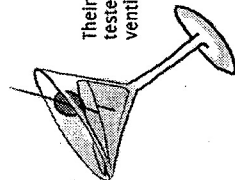


The entire fly genome was sequenced in 2000. To understand the function of particular genes, scientists can generate a mutation in their genetic code and observe its effects.

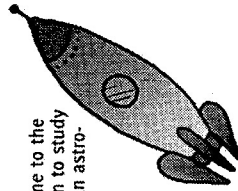


Since flies and humans have the same fundamental genetic system of development, finding answers in their genome may lead to finding similar answers in ours!

And lab experiments are now revealing secrets about how a particular molecule plays a role in processing memories.



Their resistance to alcohol is being tested to identify strategies in preventing alcohol abuse.



Scientists are sending some to the international space station to study the effects of gravity on an astronaut's health.

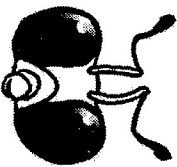
What are they currently being used for?  
To name a few ...

There have been some famous mutant flies through history that have helped us understand which genes control specific physical or behavioral traits.

"White-eyed"  
This was the first ever recorded mutant, studied by T.H. Morgan in 1910. The lack of pigment in the eye is a recessive trait.



"Antennapedia"  
When scientists mutated a gene that altered the development of legs in flies, their antennae converted into a new, functional pair of legs.



"Bithorax"  
A mutation in a group of genes that control the differentiation between the thorax and the abdomen makes this change. A segment of the abdomen transforms into a complete second thorax.

