

National Aeronautics and Space Administration



Lucy's Planet Hunt

Or, how to see things in a different light



Story by Diane K. Fisher
Illustrations by Alexander Novati

www.nasa.gov

**This is a fictional story inspired by
NASA's Spitzer Space Telescope.
Any similarities to actual persons,
living or dead, is entirely coincidental.**



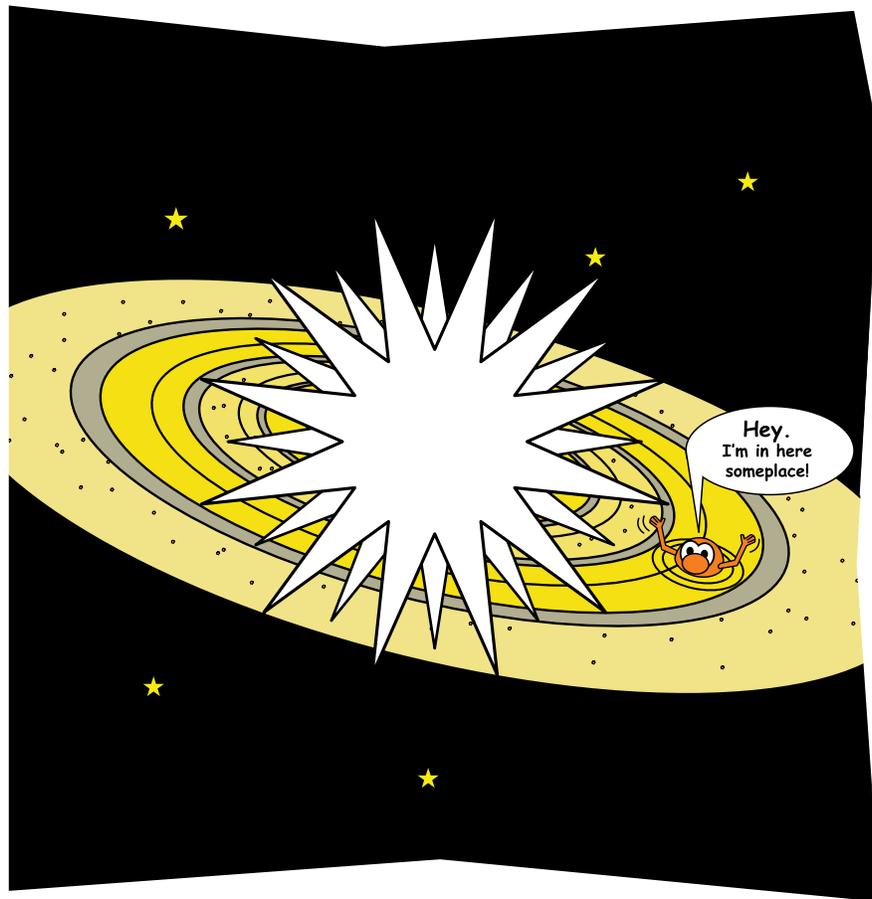
I'm Lucy Nell, astronomer.
I love the sky at night.
I long to see through dark and dust,
To see with special sight.

'Who else is there?' I always asked,
Gazing toward the stars.
Is Earth the only living home?
The only heartbeats ours?



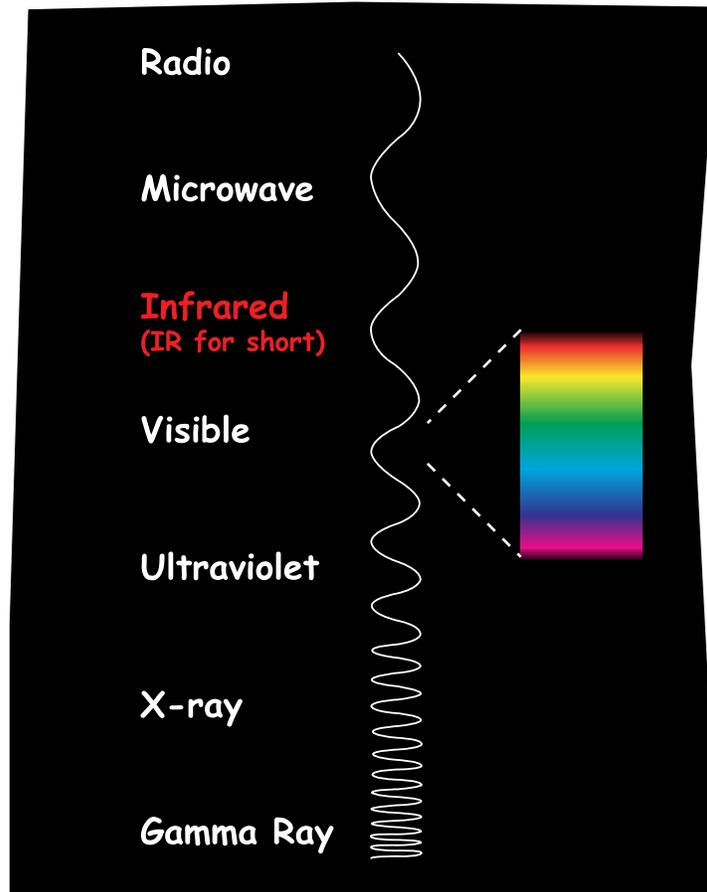
I longed to solve this mystery
Since just a tiny sprite.
So as I grew, I learned—and planned
A way to use the light

That comes from stars both near and far
To search for sister Earths.
To find some stars with dusty disks—
At least a planet's worth.



For that is how a planet forms
From glommed-together goo.
Well, really it's just dust and gas
With gravity the glue.

It's hard to see them, in the haze
Of blazing stars' bright light.
The dust and planets' cooler rays
Just disappear from sight.



But then I thought of another way
To find them in the glare.
For light has many parts apart
From those we think are there.

For what we see is just a bit—
A tiny bit at that,
Of all the kinds of light that shine
From light bulbs, stars, and cats.



"Cats!?" you say. "How can that be?
I've never seen my Fluffy
Shining with her own cat light!"

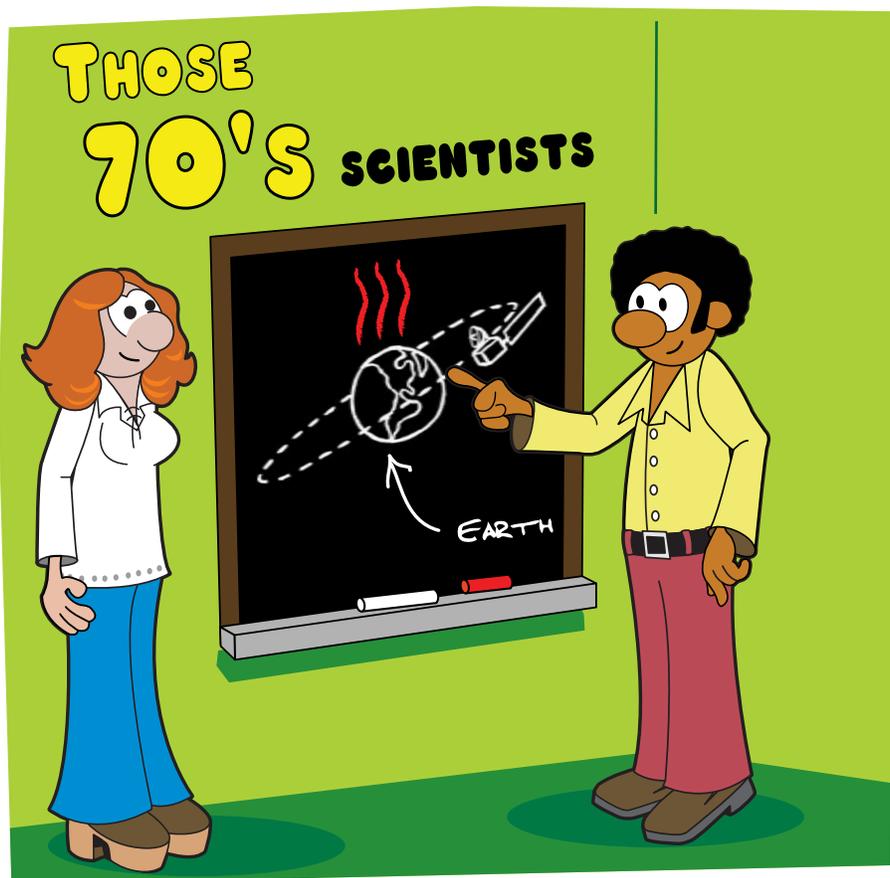
Hold on, now! Don't get huffy!

For in a world you cannot see
Shines light called in-fra-red.
You feel this light upon your skin
As toasty heat, instead.



People, 'possums, pets alike
All glow in infrared.
And so should planets, dust, and gas,
With stars, all inter-spread.

I wondered if a telescope could
Sense this cooler light.
And what we'd find among the stars
Too cool to shine as bright.



In school, I had a friend named Hugh
An engineer in training.
We talked about a planet hunt
And how to go campaigning

For help to build a telescope
The IR light to see,
T'would need to do its work from space
The heat from Earth to flee.



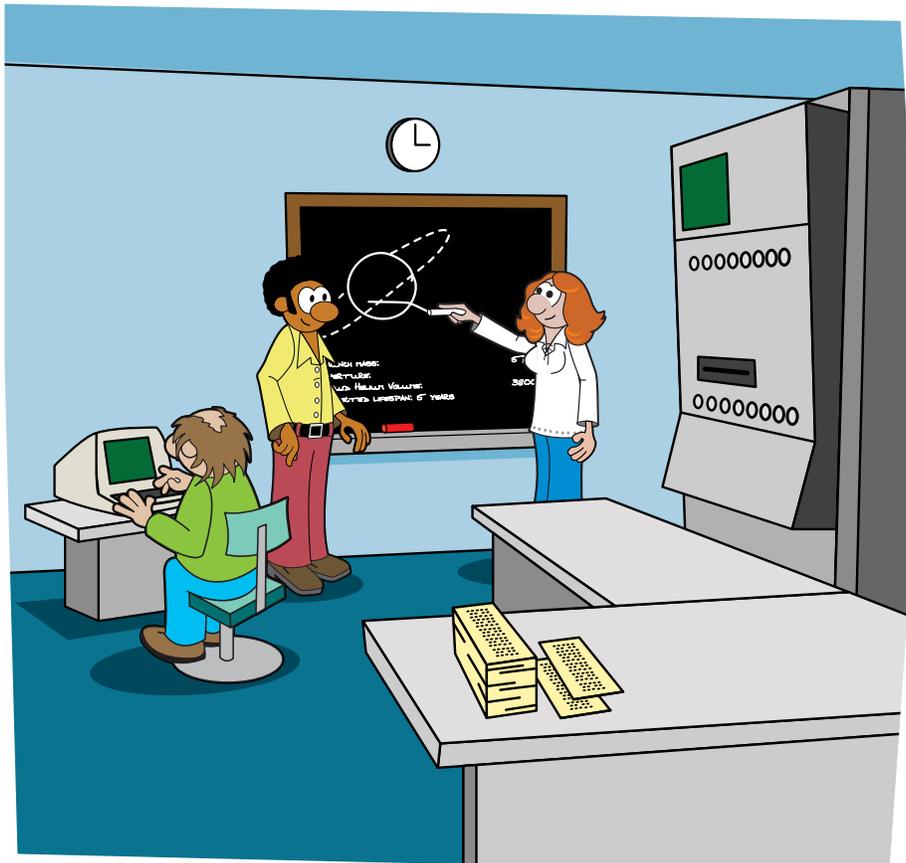
To see such things as planets cold,
And gas and dust debris,
The telescope itself must freeze to
Less than zilch degrees!

To build a spacecraft-telescope,
And chill it to the max
Would take hi-tech skill and lots of help.
We had to learn the facts!



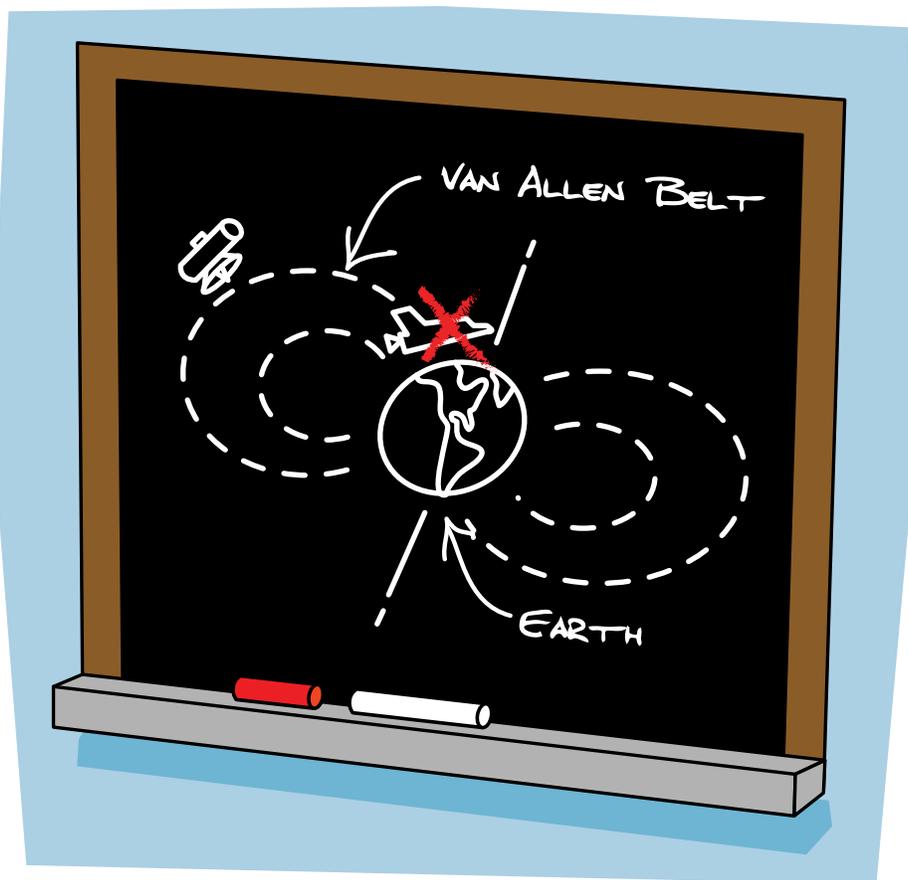
How to make an IR sensor,
Keep it cold for years to come.
And get it boosted into space
For a sanely tidy sum.

So, out of college we went to work
Where experts are galore
At NASA, with their spacey probes,
Their telescopes, and more.



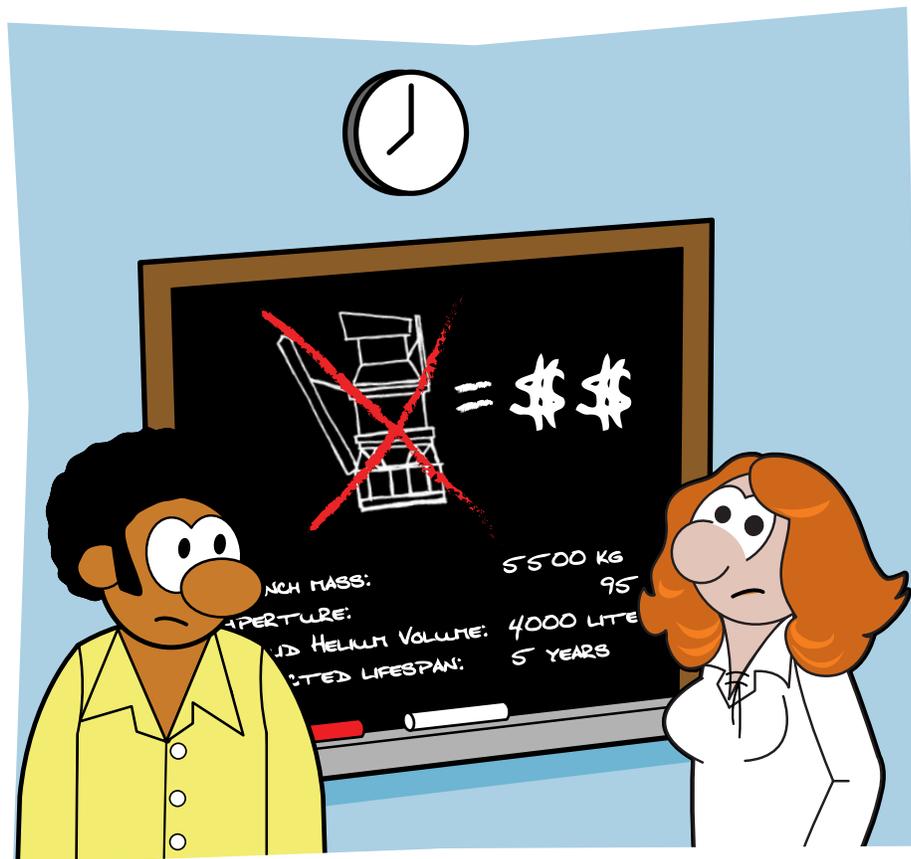
We found a bright and willing team
Of NASA brains and hands,
Of scientists and engineers
Who shared our dreams and plans.

For years we sketched. We reckoned long,
Made lots of cool designs.
We never lost our will to win—
The perfect scheme to find.



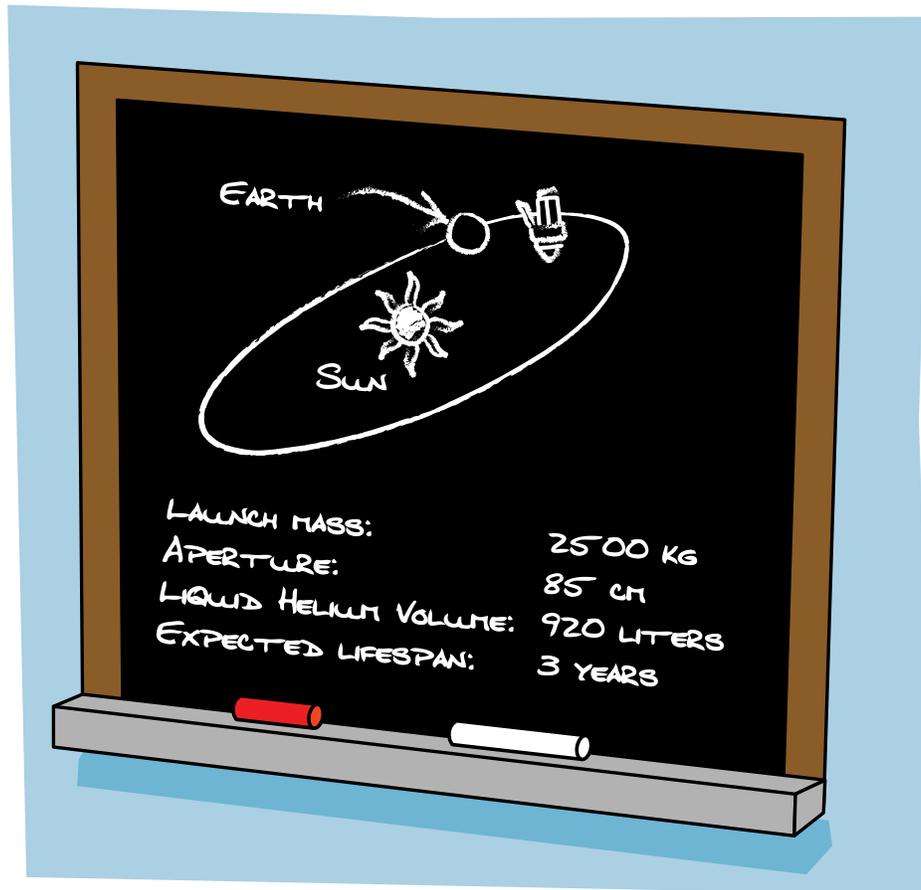
"Our first thought was the Shuttle
To take our 'scope aloft,
A month-long mission, or a few,
A scientist astronaut.

But far, far more our goal would serve
To get our 'scope up higher,
Above Earth's radiation belts.
Let's build a high free-flyer!



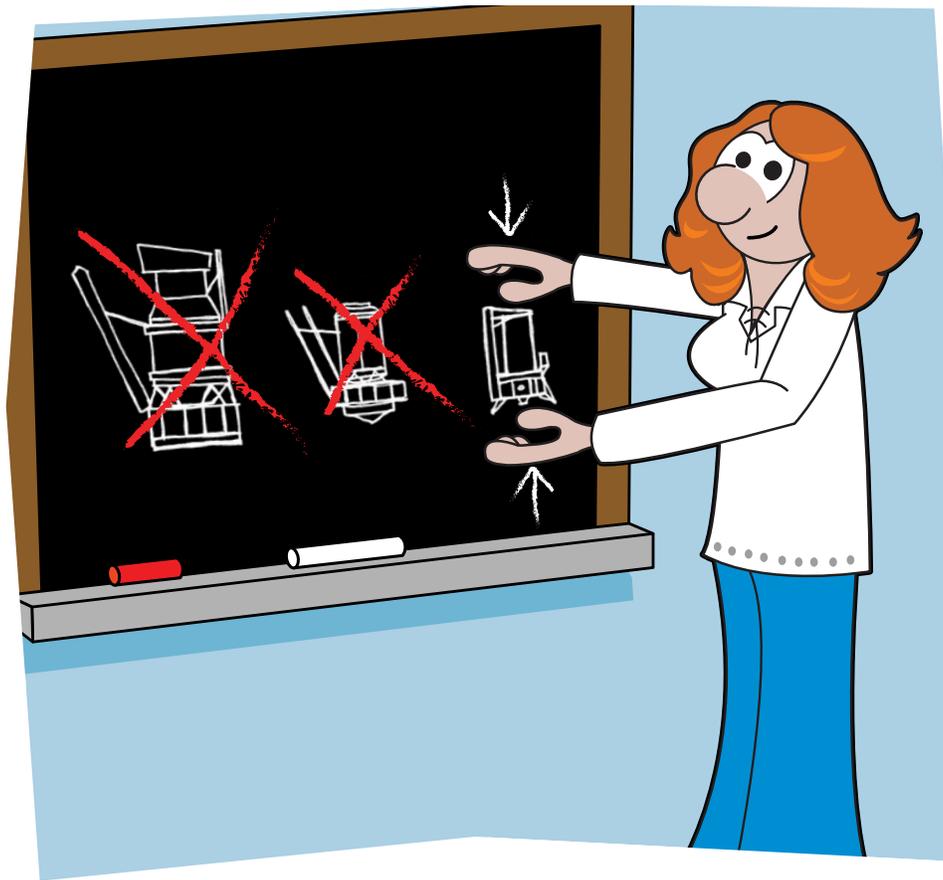
No astronaut need be aboard.
We'd orbit high for years.
We'd need a giant rocket boost
But no spaceman volunteers.

But alas, this plan was highly priced,
The spacecraft far too large.
We had to think of something else
With not so steep a charge.



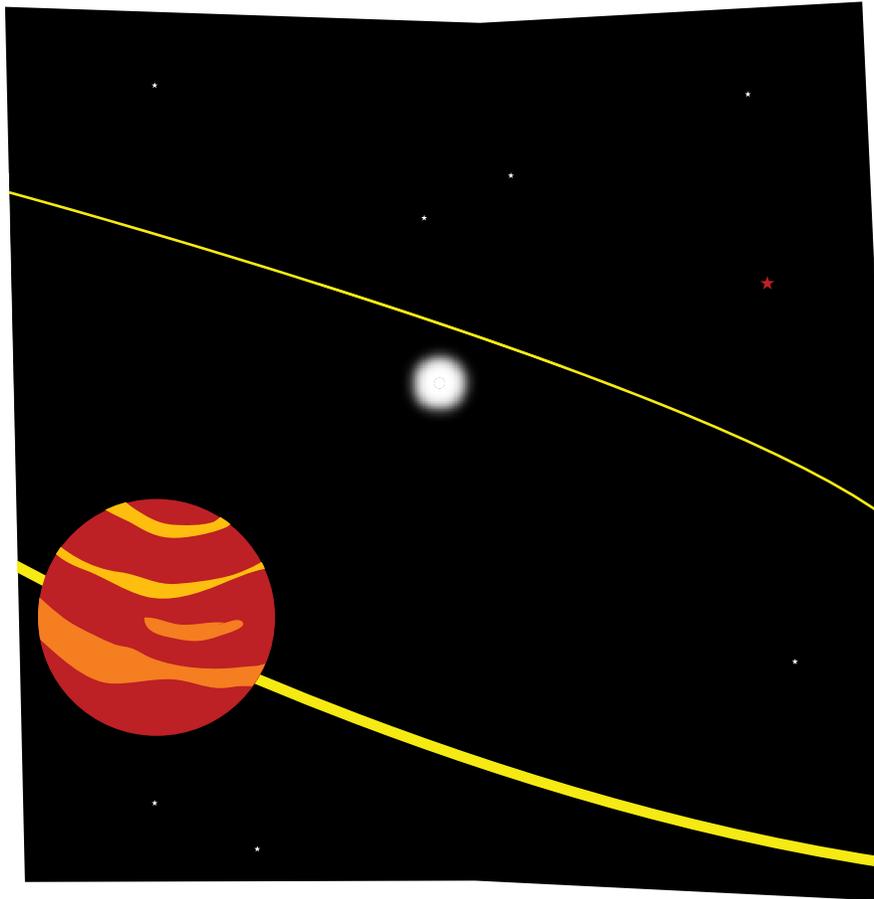
Next, we made it smaller
With its booster shrunk to scale.
Instead of going 'round the Earth,
Earth's orbit it would trail.

This way it would be cooler
And easier to track.
Its solar shield turned toward the Sun
Its sensor side in black.



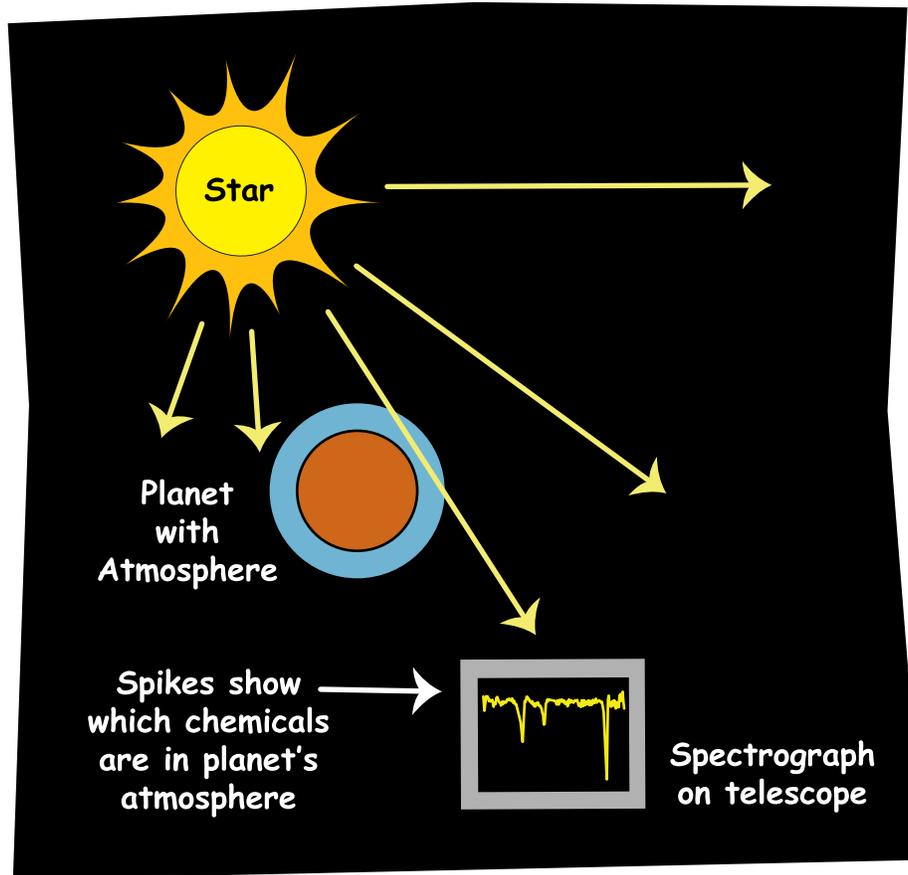
This plan was even closer to
What our bosses craved.
But smaller yet they urged our plan.
More mass we'd have to shave.

Our telescope grew smaller still
But sharper grew our view
Of what we wished to do with it
What knowledge to pursue.



We'll look for other planets
And where they're likely found,
In dusty disks around new stars,
Before the dust is bound.

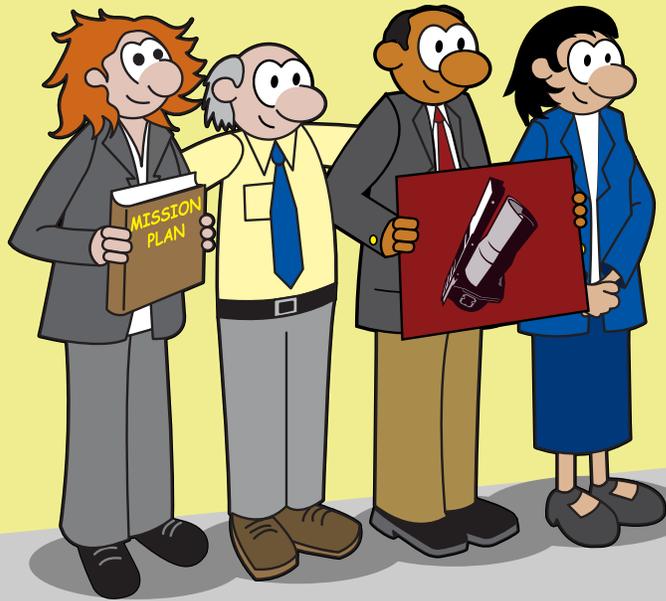
Brown dwarfs we'll see in infrared,
And super planets too.
Odd orbs too dark to see in light
Will stand out in our view.



'Cause as we made it smaller
And as we made it cold,
Our partners worked on instruments
And shrank them several-fold.

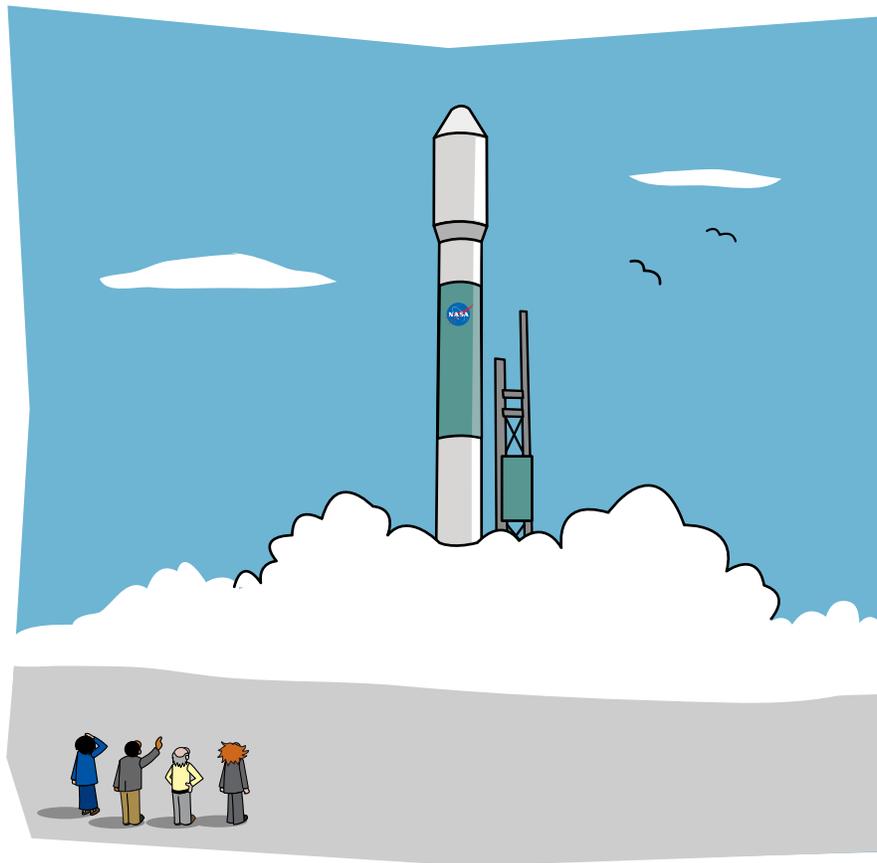
Two cameras, And a spec-tro-graph
With special high-tech eyes
To help us find the chemicals
That lurk in dark disguise.

CONGRATULATIONS



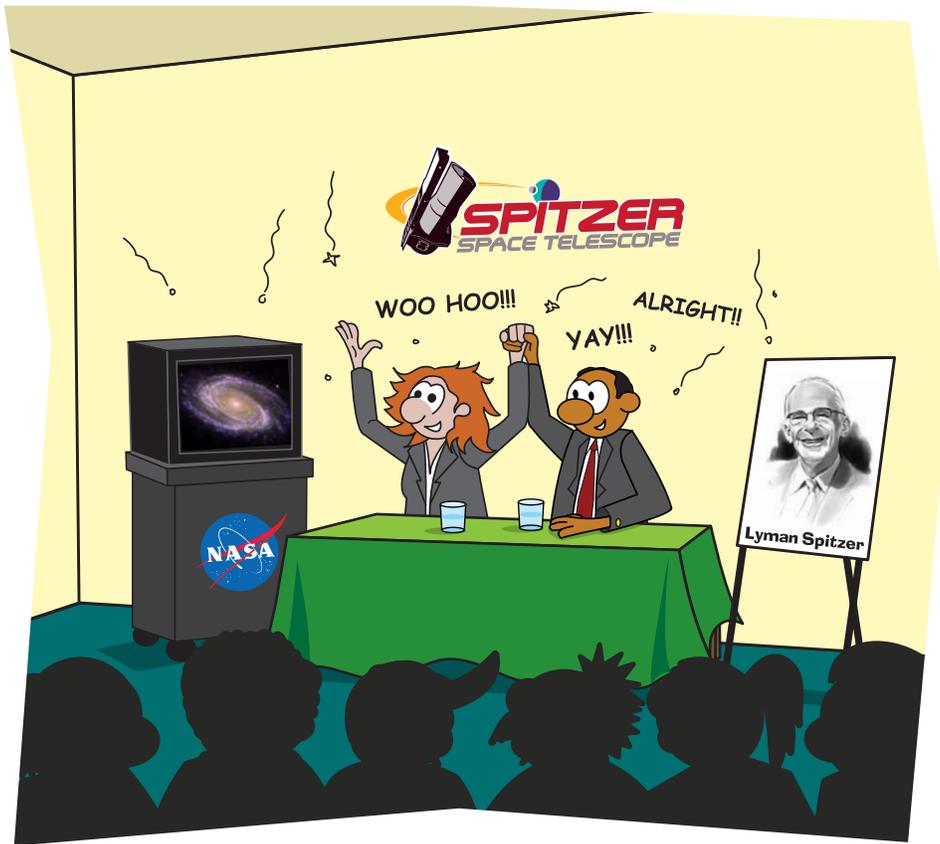
A perfect IR telescope!
A way to keep it cold!
A plan to orbit 'round the Sun!
A rocket, sleek and bold!

All pieces were in place at last.
The money in the kitty.
It took some years and lots of work
By a passionate committee.



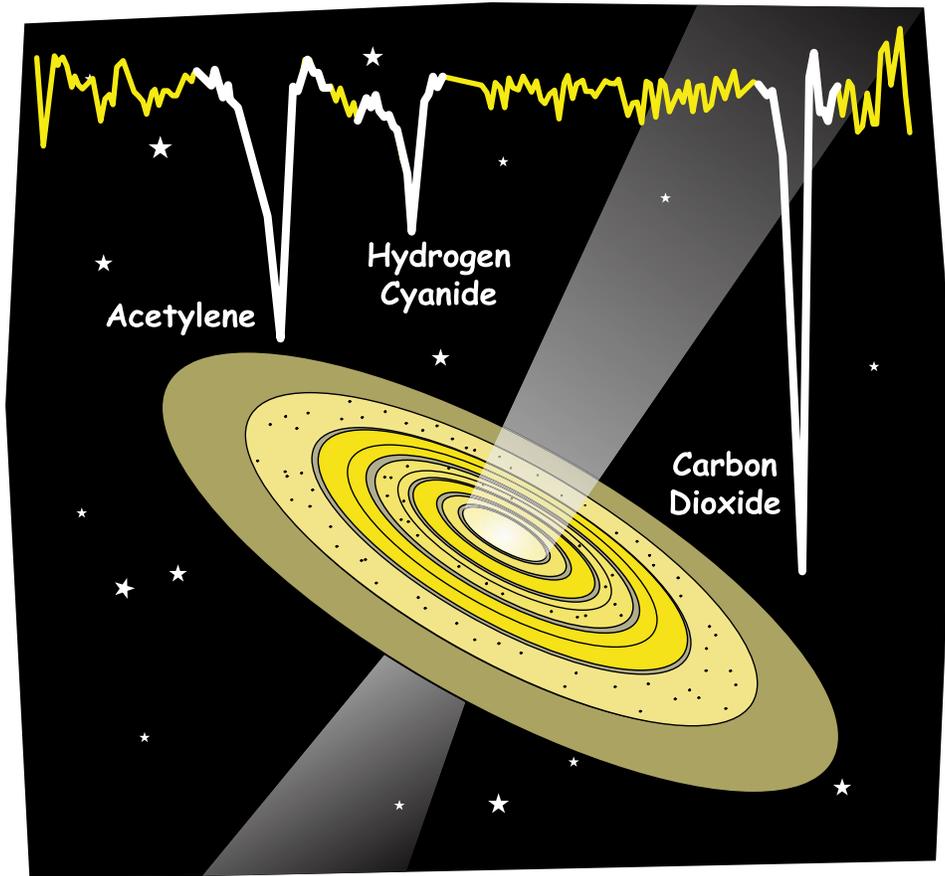
We praised great Lyman Spitzer
By picking out his name
To give our precious mission
The honor of his fame.

Our launch was perfect! Our mood was tense.
Only pictures would tell the tale.
How would it work? What would we see?
What mysteries be unveiled?



We gasped! We screamed! We jumped for joy!
As the pictures first arrived.
Gorgeous spiral galaxies, and
Gas where new stars thrived.

And planets! Lots of evidence of
Planets old and new.
Stars with disks of dust and gas
Aplenty. Planet stews!



The spectrometer went right to work
To sniff the light for clues.
It learned the planets' atmospheres
It told the planets' brews.

In infrared the planets glowed
Enough to beat the shine
Of suns so bright in other hues
Our telescopes they blind.



The telescope outdoes my dream
To see the sky at night.
Now I see through dark and dust,
I see with special sight.

'Who else is there?' I always asked,
Someday I'll find the key.
Is Earth the only living home?
I hope not . . . but we'll see.

The Spitzer Space Telescope

The Spitzer Space Telescope sees a universe invisible to our eyes and to ordinary telescopes. It sees the “invisible” because it views the Universe in infrared light, rather than visible light. Although we cannot see infrared light, we can feel it as heat.

This special telescope can see right through clouds of dust and gas in space. Unlike visible light, infrared light passes right through the clouds, revealing what lies beyond them. Also, Spitzer allows us to see objects in space that are too cool to glow in visible light—such as those clouds of dust and gas, which are likely to be places where new stars or even planets are being born.

Find out more about Spitzer and see lots of beautiful Spitzer images at www.spitzer.caltech.edu.

And visit The Space Place at spaceplace.nasa.gov for games, cartoons, and astonishing images from the Spitzer Space Telescope.

National Aeronautics and Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

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