

LAB LIBS

The Perks of Being an Astrophysicist

One of the _____ perks of being an astrophysicist is getting to
_____ a telescope. For the Dark Energy Survey, we use a telescope
at the _____ Observatory high in the mountains of _____.
The elevation means there are far fewer _____ than usual, so it's
a(n) _____ place to observe the night sky. We take pictures of mil-
lions of _____ and _____ floating out in space, which give us
an idea of how the universe _____. To capture these images, we
use a 570-megapixel camera, which is about the size of a _____.
Compare that to the roughly 20-megapixel camera on the _____
you probably have in your pocket right now! We'll use all of these
_____ images to better understand dark energy, a mysterious
_____ that is _____ the universe apart faster and faster. Who-
ever figures that puzzle out will probably win a(n) _____.

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How to Build a Physics Experiment

Building your own neutrino experiment is easy. First assemble a team

of _____ . Then design a particle detector full of

ADJECTIVE PROFESSION, PLURAL

_____, the latest technology in _____ neutrinos, also known

NOUN, PLURAL VERB ENDING IN -ING

as _____ particles. Fun fact: if a _____ explodes somewhere

NOUN NOUN

in the Milky Way, your experiment should be able to see it! You'll want

to build your detector _____ underground, to block out all the

DISTANCE

_____ coming from the atmosphere. Consider building it inside of

NOUN, PLURAL

a _____. Hire some _____ to carefully _____ the de-

PLACE NOUN, PLURAL VERB

tor in its new home. Connect all the _____ coming out of the

NOUN, PLURAL

detector to the data acquisition system, chill everything to precisely neg-

ative _____ degrees Fahrenheit, and wait for the _____ to roll

NUMBER

NOUN, PLURAL

in! Make sure to give your project a _____ name, like the "Grand

ADJECTIVE

_____ Experiment."

ADJECTIVE

NOUN

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Discovering the Final Quark

Dr. _____ was a very _____ physicist. Her team of _____
FEMALE FRIEND'S NAME ADJECTIVE, EMOTION NUMBER

graduate student(s) and _____ Nobel Prize winner(s) had been
NUMBER

searching for the _____ quark, the final piece of the Standard Model
NOUN

puzzle, for what seemed like forever: _____. Dr. _____ rubbed
LENGTH OF TIME NAME FROM 1ST BLANK

her _____ together in anticipation. Other scientists had already
NOUN, PLURAL

_____ five kinds, aka flavors, of quarks: the _____ quark, the
VERB, PAST TENSE NOUN

_____ quark, the _____ quark, the _____ quark, and the
ADJECTIVE NOUN VERB

_____ quark. The results today would reveal whether they had suc-
NOUN

ceeded at finding the most _____ of the quarks. Hundreds of people
ADJECTIVE

had built a/n _____ particle accelerator at the _____ National
ADJECTIVE FAMOUS NAME

Accelerator Laboratory in _____, and it had _____ millions of
PLACE VERB, PAST TENSE

particle collisions. Dr. _____ and the team _____ looked at the
NAME FROM 1ST BLANK ADVERB

data and saw what they had hoped for: a _____! The final quark had
NOUN

been found! The team celebrated by _____ a bottle of _____
VERB ENDING IN -ING LIQUID

and having a toast: "Hip, hip, _____!"
EXCLAMATION

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Gifts from the Sun

Did you know that billions of tiny _____ are created in the

NOUN, PLURAL

core of the sun as a product of nuclear fusion every _____?

TIME INTERVAL

They _____ in all directions, including towards Earth, but are so

VERB

_____ that they pass right through matter—even entire

ADJECTIVE

_____—without ever being noticed. _____ need to use extra-

NOUN, PLURAL

PROFESSION, PLURAL

_____ detectors to catch even a few. These detectors are often filled

ADJECTIVE

with liquid _____. We want to learn as much as we can about

NOUN

their properties, such as how _____ they are and how often they

ADJECTIVE

_____. This will help us understand how they _____ with

VERB

VERB

other _____ in the Standard Model of _____ and could even

NOUN, PLURAL

NOUN, PLURAL

explain the role they played in the _____ of the entire _____.

VERB ENDING IN -ING

NOUN

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Upgrading a Collider

Early today, a group of _____ at CERN's Control Center turned off
PROFESSION, PLURAL

the _____ Collider. The collider was _____ used
ADJECTIVE NOUN ADVERB

to discover the elusive _____ boson. Over the past three years,
PROPER NOUN

collisions produced more than _____ of _____ to
NUMBER UNIT OF MEASUREMENT, PLURAL NOUN, PLURAL

be studied in the quest to understand the _____ and _____
NOUN, PLURAL NOUN, PLURAL

that make up everything around us. CERN's accelerators will be stopped
for about _____ for major renovations and upgrades. For example,
LENGTH OF TIME

technicians will replace _____ of the collider's _____, crucial
NUMBER NOUN, PLURAL

components that accelerate and _____ subatomic particles.
VERB

They'll also install new _____, which will enable the collider to
NOUN, PLURAL

_____ at higher energies than ever before!
VERB