



**National 5
Physics**

**practice
open-ended questions**

each question is worth 3 marks

open-ended questions for National 5 Physics



Anti-skid surfaces are often installed at road junctions.

Use your knowledge of Physics to explain why these road surfaces improve safety at junctions.

Photons and Gamma Rays

Even before I blink a thought
A gamma ray flits and winks out
Flies across the screen
And off the stage
As if it, had never been

It might fly in your ear or up your nostril
You would never know
You had been impregnated
By a Gamma Ray
Not by a Beta or Alpha

Shimon Weinroth

Comment on the poet's understanding of nuclear radiation.



The picture shows a dog team about to pull a sled through snow.

The sledge is at rest. When the dogs start to pull the sled forward, the sled pulls back on the dog team with an equal and opposite force.

Use your knowledge of Physics to explain the movement of the sled.

Speeding Ticket

woo woo wooooooooOOOO
here come the cops,
and my heart stops.
license at home,
my window knocks.
expensive ticket,
insurance rates with it
soar faster than this
speeding ticket.

LaClaire Mitchell Nzerem

Use your knowledge of Physics to explain how the speed of an object could be measured.



The photo shows a car brake light.

Explain why many manufacturers now select LEDs, rather than bulbs, for car brake lights.

The Thunder and Lightning

The night is going dark
The skies are going darker
I heard a roaring sound
Look, it's the lightning above

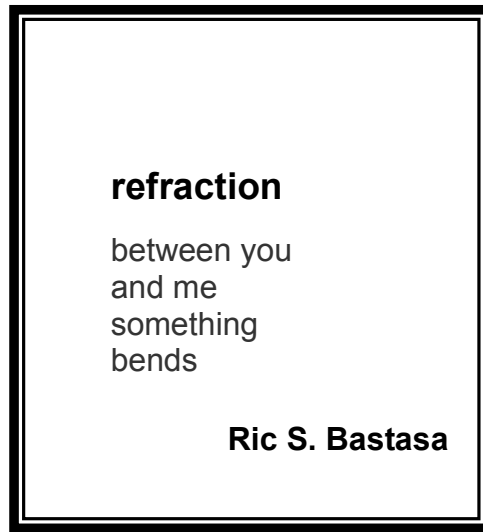
Hunter Kejick

Use your knowledge of Physics to comment on the poet's understanding of thunder and lightning.



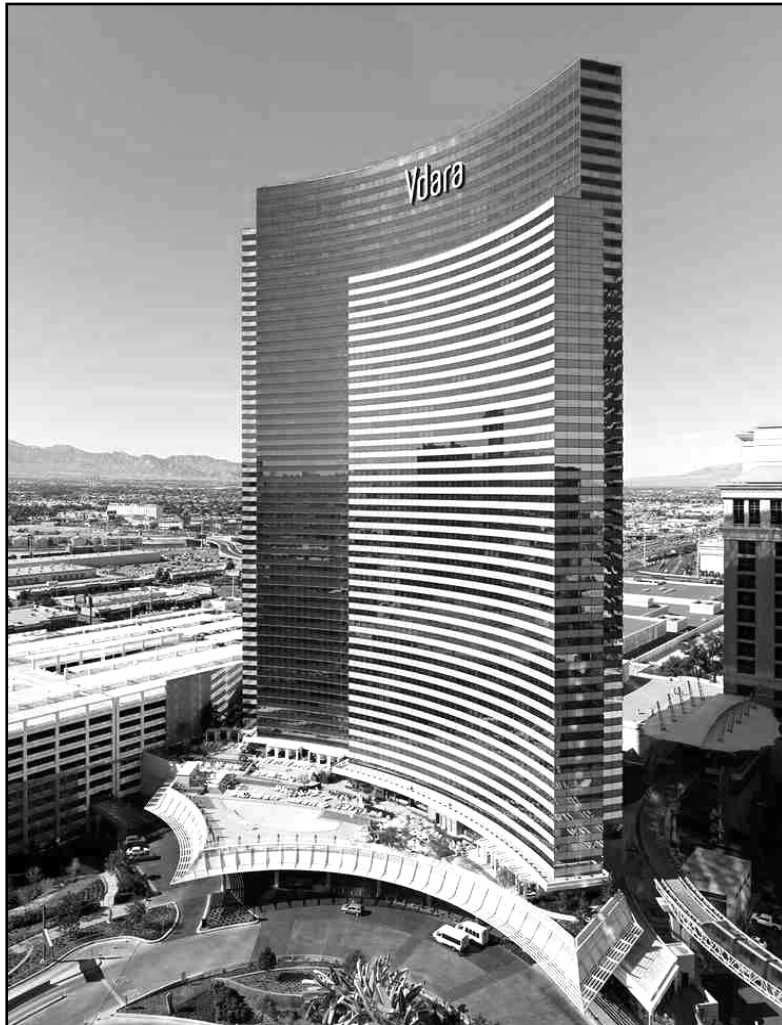
During the summer holidays, a student noticed that the sand on a beach felt much warmer than the sea.

Explain the student's observation.



Use your knowledge of Physics to comment on the poet's understanding of the term "refraction".

You may include a diagram to support your answer.



The photograph shows Hotel Vdara in Las Vegas, which opened in 2010.

The first guests to use the swimming pool and sunbathing area in front of the building experienced severe sunburn. The hotel company made changes to prevent this from happening again.

Use your knowledge of Physics to explain this incident and suggest appropriate changes to keep hotel guests safe.



A Physics teacher states that geostationary satellites have a constant period of 24 hours. Later in the lesson, the teacher says all satellites are “accelerating”.

Use your knowledge of Physics to comment on the teacher’s statements.

Satellite

Floating through the darkness with no sense of life
It's always dark here both day and night
There's no way out of this place, no way home
But I know I'm not the only one all alone
I wish that I could come back down
Instead of flying around and round
This isn't my home, nothing is ever when you're not here
In this place of emptiness and fear
I guess I'll just float lifelessly through the night
Because tonight I'm just a satellite

R. Grrl

Explain the ways in which satellites have contributed to our knowledge of Planet Earth.