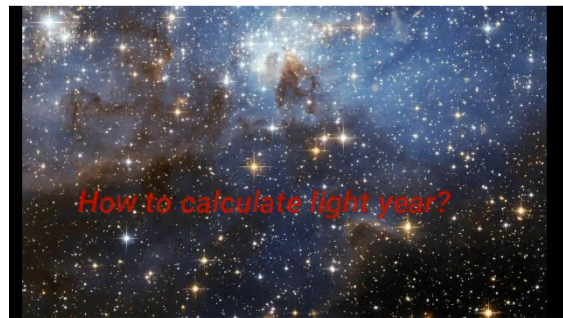


# Light year



What is a Light Year? Physics Lesson Idea: Space



How to calculate light year?

Speed of light "c" =  $3.0 \times 10^8$  m/s  
or

$"c" = 3.0 \times 10^5$  km/s  
 $300\,000$  km/s

*1 yr = 365 days*  
*1 day = 24 hr*  
*1 hr = 60 min*  
*1 min = 60 Sec*

### 1 year in seconds

$$\text{Time} = 1 \text{ year} \times \frac{365 \text{ days}}{1 \text{ year}} \times \frac{24 \text{ hr}}{\text{day}} \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{60 \text{ sec}}{\text{min}}$$

$$= 31\,536\,000 \text{ seconds}$$

Distance of 1 light year =  $c \times t$

$$= (3.0 \times 10^5 \text{ km/sec}) \times (31\,536\,000 \text{ sec})$$

$$= 9.4606 \times 10^{12} \text{ km}$$

*given on a test*

Conversion is

$$1 \text{ Light year} = 9.4606 \times 10^{12} \text{ km}$$

it is a measure of Distance

Ex) *If a star is 18 light years away, what is its distance in "km"?*   
*exp button not x*

Ex2) *If a star is  $2.76 \times 10^{14}$  km away, how many light years is that?*

*It is light years away*

So if a star is 9 Light years away

What is it's distance in km?

*exp button on calculator*  
9.4606 Exp 12

$$1 \text{ Light year} = 9.4606 \times 10^{12} \text{ km}$$

$$9 \text{ light years} = (9.4606 \times 10^{12}) \text{ km} \times 9$$

$$= 8.51454 \times 10^{13} \text{ km}$$

$$= 85145400000000 \text{ km}$$

*on calculator screen*

8.51454 13

*SPACE*  
*↑*  
*10*

## Attachments

---

Natural Science 9 Course Outline 2018 (Semester 2).pdf

Natural Science 9 Course Outline 2021 (Semester 2).docx