Take This

Research:
Sleep
Circadian rhythm

Years 7-8

GEOMETRY AND MEASUREMENT

Length, area
Students create a 3D scale model of their own bedroom and bedroom furniture, and/or a scale model of their ideal bedroom (based on measurement information of their own room space).
- Make and list measurements (m) of room dimensions, doorways and open door clearance space, furniture dimensions, other features.
- Decide on appropriate cm:m scale and calculate (cm^2/m^2) cardboard materials needed to make model.
- On card, 'map' floor space to scale, make furniture using knowledge of nets for cuboids and other 3D shapes as appropriate, and locate in 'room'.
- Colour, decorate as appropriate.

STATISTICAL INVESTIGATIONS AND LITERACY

Discuss/debate: *Our brains are inactive, or passive, when we are asleep.* **OR** *Our bodies require sleep to maintain proper function and health.*

Students plan and conduct an investigation. For example: What are the bedtime/sleeping habits of students in Room X ?

They decide on the *appropriate* variables, eg. bedtime (give range), watch TV in room till late (yes/no), read till late (yes/no), number of people sharing the bedroom, cell phone allowed in bedroom (yes/no), woken often by noise, eg dogs barking (yes/no), waking time (give range), hours slept.

Does the amount of sleep I have affect my behaviour during the following day? Collect (time series) data: hours of sleep and rated (eg.0-5) behaviour measures (eg. I concentrate, I complete work, I relate well to others, I have energy, I feel positive, I am organised, I enjoy learning etc.).

Students gather and sort data, present these using a range of displays (time series graphs, box and whisker) Compare the distributions visually, look for patterns, relationships and trends. Find mode, median and mean as appropriate. Draw conclusions and inferences in context, recognising limitations and that samples vary.

Objectively evaluate their own investigation process and findings, and that of others. Communicate their findings.

NUMBER

As part of ongoing numeracy learning, students apply a range of advanced multiplicative and proportional strategies/reasoning, and knowledge of decimals to the statistical investigation and measurement tasks. Also pose problems such as:
- In 4 weeks a student has 238 hours of sleep. What is his average amount of sleep per night/per week. If this sleep rate continues for 1 year estimate, then calculate in at least two ways, the % of the year he is asleep? What is his nightly sleep average if he sleeps for 28%/ 40% of the year?
- Students make weekly, monthly, annual calculations using their own sleep data.
- Make calculations for % sleep for each age group shown category on this table. Show results graphically.

Age	Sleep Needs
Newborns (0-2 months)	12-18 hours
Infants (3-11 months)	14-15 hours
Toddlers (1-3 years)	12-14 hours
Preschoolers (3-5 years)	11-13 hours
School-age children (5- 10 years)	10-11 hours
Adolescents (10-17 years)	8.5-9.25 hours
Adults (including elderly)	7-9 hours

"How Much Sleep Do We Really Need?" National Sleep Foundation

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ALGEBRA

Have students identify sleep patterns. Eg. Describe what is happening, state the rule and give the total number of hours sleep after 20 nights.

Nights	2	5	8	12
Total hours sleep	15	36	57	85

Nights	3	6	9	12
Total hours sleep	28	58	88	118

Nights	1	3	5
Total hours sleep	14	30	46

Create other patterns and give the rule (linear equation).

n is the number of hours sleep per night. Two people sleep the same total hours , (including extra hours spent napping) over a different time period. Find the value of n (hours slept/night)

$5n + 3 = 4n + 11$

$3(3n + 1) = 7n + 1$