

Y8 Independent Learning Task

Subject:	Mathematics			
ILT #1	Pi Investigation			
Week set:				
Duration:	Approximately 1 to 1 ½ hours			
Hand in:				
Instructions :	Measure at least six circular objects and investigate the value of π (pi). For each object: • Measure the diameter. • Measure the circumference using a piece of string (for example). • Calculate Circumference ÷ Diameter. • Compare your answers with 3.14159... • Present your findings clearly in a report, poster, spreadsheet or presentation. You may also calculate the percentage error and explain why your measurements are not exactly the same.			
Skills:	This task develops students' ability to: • Measure accurately using mathematical equipment. • Collect and record mathematical data. • Calculate and interpret ratios. • Compare results and identify patterns. • Explain mathematical ideas using evidence. • Investigate mathematics through practical enquiry. • Develop accuracy, resilience and independent learning.			
Marking schema:		Developing	Proficient	Advanced
	Assessment Area	Emerging	Secure	Excelling
	M athematical Understanding	Measures objects and calculates some values of π with limited explanation.	Accurately calculates π for several objects and explains findings clearly.	Demonstrates accurate calculations throughout and explains why results vary using mathematical reasoning.
	A pplication of Mathematics	Uses measurements with some accuracy.	Correctly applies measuring and calculation skills to investigate π .	Applies mathematical skills confidently, including percentage error or further investigation, making links between measurement and accuracy.

	Thinking & Communication	Presents findings with some mathematical vocabulary.	Presents results clearly using tables, calculations and appropriate mathematical language.	Communicates findings confidently using precise mathematical vocabulary, organised tables, graphs or diagrams and thoughtful conclusions.
	Habits of Independent Learning	Completes the basic investigation with some support.	Works independently, measures carefully and completes all mission requirements.	Demonstrates initiative by investigating additional objects, checking accuracy and reflecting on results independently.
	Stretch & Challenge	Completes the core investigation.	Completes one or more Level Up Challenges.	Goes beyond expectations through additional research into π , percentage error, history of π or real-life applications.
Additional guidance or help:	Need ideas? Measure objects such as: • Pizza • Bicycle wheel • Coins • Bottle lid • Plate • Plant pot • Tin can • Clock • CD/DVD • Ball Remember: • Measure as accurately as possible. • Use the same units throughout. • Repeat measurements if they don't look right. • Small measuring errors can make noticeable differences to your value of π. For an extra challenge: • Calculate the percentage error for each result. • Explain why measurements differ. • Research the history of π. • Investigate where π appears in real life, engineering or nature.			