

Planets Clues

Webaddress for this activity is:

<http://www.collaborativelearning.org/planetsclues.pdf>

COLLABORATIVE LEARNING PROJECT

Project Director: Stuart Scott

We support a network of teaching professionals throughout the European Union to promote inclusive education. We develop and disseminate accessible talk-for-learning activities in all subject areas and for all ages.

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BRIEF SUMMARY OF BASIC PRINCIPLES BEHIND OUR TEACHING ACTIVITIES:

The project is a teacher network, and a non-profit making educational trust. Our main aim is to develop and disseminate classroom tested examples of effective group strategies that promote talk across all phases and subjects. We hope they will inspire you to develop and use similar strategies in other topics and curriculum areas. We want to encourage you to change them and adapt them to your classroom and students. We run teacher workshops, swapshops and conferences throughout the European Union. The project posts online many activities in all subject areas. An online newsletter is also updated regularly.

*These activities are influenced by current thinking about the role of language in learning. They are designed to help children learn through talk and active learning in small groups. They work best in non selective classes where children in need of language or learning support are integrated. They are well suited for the development of speaking and listening. They provide teachers opportunities for assessment of speaking and listening.

*They support differentiation by placing a high value on what children can offer to each other on a particular topic, and also give children the chance to respect each other's views and formulate shared opinions which they can disseminate to peers. By helping them to take ideas and abstract concepts, discuss, paraphrase and move them about physically, they help to develop thinking skills.

*They give children the opportunity to participate in their own words and language in their own time without pressure. Many activities can be tried out in pupils' first languages and afterwards in English. A growing number of activities are available in more than one language, not translated, but mixed, so that you may need more than one language to complete the activity.

*They encourage study skills in context, and should therefore be used with a range of appropriate information books which are preferably within reach in the classroom.

*They are generally adaptable over a wide age range because children can bring their own knowledge to an activity and refer to books at an appropriate level. The activities work like catalysts.

*All project activities were planned and developed by teachers working together, and the main reason they are disseminated is to encourage teachers to work more effectively with each other inside and outside the classroom. They have made it possible for mainstream and language and learning support teachers to share an equal role in curriculum delivery. They should be adapted to local conditions. In order to help us keep pace with curriculum changes, please send any new or revised activities back to the project, so that we can add them to our lists of materials.

Planets Clues Sheet A

Gravity clues

The force of gravity on Venus is $2\frac{1}{4}$ times greater than on Mercury.

The force of gravity on Pluto is $\frac{1}{4}$ of the force of gravity on Mars.

The force of gravity on Mercury is 4 newtons per square metre.

The force of gravity on Neptune is $2\frac{3}{4}$ times greater than on Mars.

The force of gravity on Saturn is $1\frac{1}{8}$ times greater than on Uranus.

Diameter clues

Earth is 2.6 times bigger than Mercury.

Mars is 1.4 times bigger than Mercury.

Pluto is 2.5 times smaller than Mercury.

Saturn is 24.2 times bigger than Mercury.

Mercury is approximately 5,000 km. in diameter.

Distance clues

Venus is $1\frac{2}{5}$ times further from the Sun than Mercury.

Saturn is 10 times further from the Sun than Earth.

Uranus is $17\frac{1}{3}$ times further from the Sun than Earth.

Neptune is $\frac{3}{4}$ of the average distance from Pluto to the Sun.

Planets Clues Sheet B

Gravity clues

The force of gravity on Jupiter is $2\frac{3}{5}$ times greater than on Earth.

The force of gravity on Uranus is $\frac{4}{5}$ of the force of gravity on Earth.

The force of gravity on Earth is $2\frac{1}{2}$ times greater than on Mercury.

The force of gravity on Mars is $\frac{1}{2}$ of the force of gravity on Uranus.

Diameter clues

Venus is 2.4 times bigger than Mercury.

Uranus is 10.2 times bigger than Mercury.

Jupiter is 28.6 times bigger than Mercury.

Neptune is 25 times bigger than Pluto.

Distance clues

Earth is $2\frac{1}{2}$ times further from the Sun than Mercury.

Mars is $3\frac{5}{6}$ times further from the Sun than Mercury.

Jupiter is $4\frac{1}{5}$ times further from the Sun than Earth.

Pluto is 40 times further from the Sun than Earth.

Mercury is approximately 60 million km. from the Sun.

Planet	Approximate diameter in kilometres	Approximate average distance from the Sun in millions of km.	Gravity in newtons per sq metre
Mercury			
Venus			
Earth			
Mars			
Jupiter			
Saturn			
Uranus			
Neptune			
Pluto			

Planets Answers

Planet	Approximate diameter in kilometres	Approximate average distance from the Sun in millions of km.	Gravity in newtons per sq metre
Mercury	5,000	60	4
Venus	12,000	110	9
Earth	13000	150	10
Mars	7000	230	4
Jupiter	143,000	780	26
Saturn	121,000	1500	9
Uranus	51,000	2600	8
Neptune	50,000	4500	11
Pluto	2000	6000	1

Object	weight on Earth in newtons.	weight on Neptune in newtons.	weight on Jupiter in newtons.	weight on Mars in newtons	weight on Venus in newtons
human				28.8	
elephant		7,920			
lion		264			
rhino			7,800		
dog		33			
hippo	4,200				
rabbit		5.94			
kangaroo		99			
rat	.6		1.56		
tiger					270
zebra			936		
cat	2				

Gravity Answers

Object	weight on Earth in newtons.	weight on Neptune in newtons.	weight on Jupiter in newtons.	weight on Mars in newtons	weight on Venus in newtons
human	72	79.2	187.2	28.8	64.8
elephant	7200	7,920	18720	2880	6480
lion	240	264	624	96	216
rhino	3000	3300	7,800	1200	2700
dog	30	33	78	12	27
hippo	4,200	4620	10290	1680	3780
rabbit	5.4	5.94	14.04	2.16	4.86
kangaroo	90	99	234	36	81
rat	0.6	0.66	1.56	0.24	0.54
tiger	300	330	780	120	270
zebra	360	396	936	144	324
cat	2	2.2	5.2	0.8	1.8