TECHNOLOGY

Printing Houses

★★★★★★★

by Aidan

A house being 3D printed

3D printing is no longer just for small toys. These days, it is being used to build real houses. These massive printers use a special concrete mixture to create walls layer by layer, following a digital blueprint. This technology is much faster than traditional construction and significantly reduces waste. It is also a great solution for creating affordable homes in areas that need them quickly. While the technology is still developing, some people already live in 3D-printed houses today. In the future, this innovative method could completely change how we build our cities, making construction cheaper, safer, and more environmentally friendly. 3D printing is the future.

Listen

WORDS			
affordable	오락실	environment	환경
blueprint	경험하다	innovative	혁신적인
concrete	단단히	massive	거대한
construction	드물다	significantly	상당히

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TECHNOLOGY

Printing Food

★★★★★★★

by Aidan

3D-printed pasta

Do you know about 3D printers? You might see small 3D pens or big, heavy 3D printers. You might also have seen 3D-printed toys or accessories. But did you know you can actually 3D print food too? It sounds crazy, but scientists have found a way to print using food like chocolate, pasta or sugar instead of plastic. You can print beautiful shapes and cool designs that are very hard to make by hand. Some chefs even use 3D printers to make special dinners. In the future, people might even have 3D printers in their kitchens. It is a new and exciting way to cook!

Listen

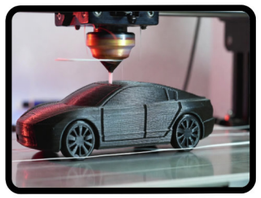
WORDS			
actually	실제로	future	미래
cool	멋진	instead of ~	~ 대신에
crazy	말도 안 되는	scientist	과학자
design	디자인	shape	모양

HISTORY

Printing Toys

★★★★★★

by Aidan



3D printing a toy car

3D printers can make toys. You put special plastic in the machine. It is called filament. The machine gets very hot. It melts the plastic. It prints toys one layer at a time. You can make toy cars. You can make toy animals or robots. You can make your own new designs. 3D-printed toys are special, new, and strong. They are very cool, too! It is very exciting to watch a 3D printer. Why don't you try it?

3D-printed character

WORDS			
animal	동물	melt	녹다
design	디자인	printer	프린터
exciting	흥미진진한	special	특별한
machine	기계	strong	튼튼한

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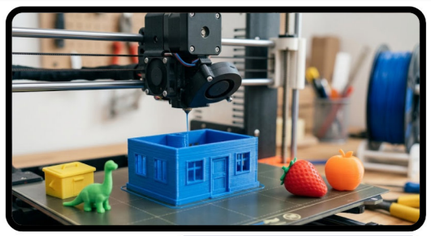
HISTORY

3D Printing

by Aidan ★★★★★★

3D printing is very fun. It is like magic! It makes toys. It makes boxes. It makes tools! It makes food and houses,too! Sometimes, it uses plastic. Be careful! The plastic is very hot. It makes layers. 3D printing is very slow. It is very fun.



3D printing is fun!

WORDS			
action	액션	game	게임
computer	컴퓨터	genre	장르
console	게임기	sports	스포츠
fighting	격투	video	비디오

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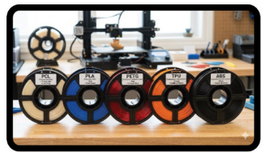
SCIENCE

Different Filaments

★★★★★★

by Aidan

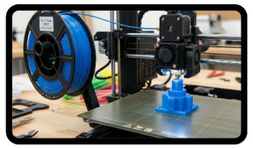


Four kinds of filament

We use special plastic called "filament" in 3D printing. There are many kinds of filament, but today I'll talk about four kinds of filament: PCL, PLA, ABS and TPU.

First up is PCL. It stands for Polycaprolactone. Have you ever used a 3D pen? It uses PCL filament. PCL has a melting point of around 80 degrees Celsius so it is safer for children to use.

3D pen



Printing with PLA

Next, let's talk about PLA. It stands for Polylactic Acid. It is the most common filament used by people with 3D printers. It has a much higher melting point of 210 degrees Celsius. It has a harsh smell but it is non-toxic and also biodegradable. It is stronger than PCL and doesn't warp as easily. It is not heat resistant.

Next up is ABS. ABS has a much higher melting point of around 250 degrees Celsius. It stands for Acrylonitrile Butadiene Styrene. It produces very sturdy prints that are both heat resistant and resistant to UV radiation. However, you must always be sure to ventilate thoroughly when printing with ABS. The Styrene contained within it releases toxic gases when it melts and could be poisonous!

ABS ventilation

WORDS			
biodegradable	생분해성의	non-toxic	독성이 없는
filament	필라멘트	sturdy	튼튼한
harsh	가혹한	ventilate	환기하다
melting point	용해점	warp	휘다

Listen

THIS WEEK'S WORDS

GRADE 3

angry	하지 마	sick	밀다
fine	마시다	sleepy	달리다
happy	먹다	thirsty	소리치다
sad	들어가다	tired	앉다

GRADE 4

don't ~	~하지 마	push	밀다
drink	마시다	run	달리다
eat	먹다	shout	소리치다
enter	들어가다	sit	앉다
here	여기	talk	말하다
play	놀다	touch	만지다

GRADE 5

animal	동물	pen	펜
bike	자전거	picture	사진
bike	자전거	ride	타다
borrow	빌리다	sing	노래하다
bring	가져오다	sit	앉다
dog	개	take	가져가다
eat	먹다	umbrella	우산
here	여기	welcome	환영하다

GRADE 6

first	첫 번째	twelfth	열두 번째
second	두 번째	thirteenth	열세 번째
third	세 번째	fourteenth	열네 번째
fourth	네 번째	fifteenth	열다섯 번째
fifth	다섯 번째	sixteenth	열여섯 번째
sixth	여섯 번째	seventeenth	열일곱 번째
seventh	일곱 번째	eighteenth	열여덟 번째
eighth	여덟 번째	nineteenth	열아홉 번째
ninth	아홉 번째	twentieth	스무 번째
tenth	열 번째	thirtieth	서른 번째
eleventh	열한 번째	grade	학년

THIS WEEK'S KONGLISH

Everybody loves a surprisingly moisturizing lip bomb

CAN YOU FIX IT?

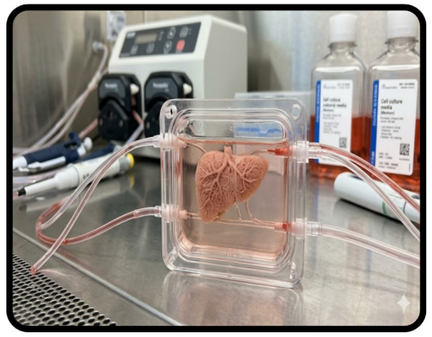
SCIENCE

3D-Printed Heart

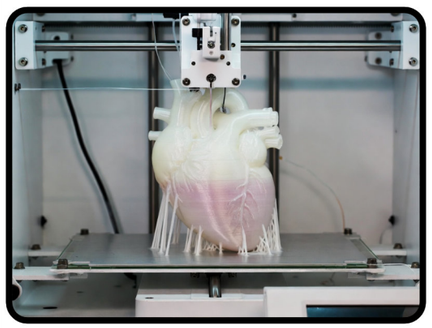
★★★★★★★

by Aidan

When you hear the term "3D-printed", what comes to mind? You may think of cheap, unreliable 3D-printed toys, low quality, poorly-manufactured phone cases or even simple designs you may have made yourself in the past using a 3D pen. However, the 3D printing industry has progressed past the level where we are able to 3D print some basic types of food and houses and has now gotten so advanced that scientists are able to 3D print smaller versions of some organs such as bladders and livers using a process called "bioprinting." While this may seem fantastical, it is far from fantasy and a very grounded reality. While these organs are not ready for incorporation into human bodies just yet, they are currently being used for advanced medicine tests and to help find cures for diseases. One doesn't need to think too long before realizing that once this technology is safe for human use it has the potential to save countless lives by drastically cutting down on waiting times for organ transplants. The future is looking bright!



A 3D-printed liver



3D-printed hearts are coming

WORDS			
bioprinting	바이오프린팅	incorporation	결합
drastically	급격히	organ transplant	장기 이식
fantastical	환상적인	progress	진보하다
grounded	근거 있는	unreliable	신뢰할 수 없는

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SCIENCE

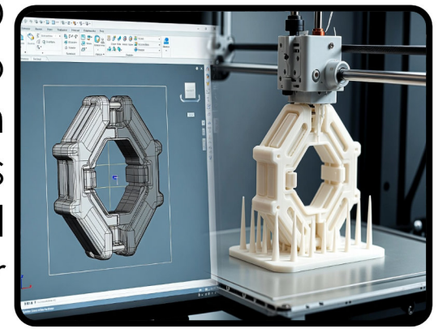
Designing in 3D

★★★★★★★

by Aidan

3D designing in CAD

Have you ever looked at a complex 3D-printed object and wondered just how it was conceptualized? The journey from imagination to physical reality relies heavily on sophisticated design methodologies, primarily Computer-Aided Design (CAD). Traditionally, CAD software was the exclusive domain of engineers and architects, often presenting a steep learning curve to master. These days, however, the advent of consumer-grade 3D printers has brought many free, accessible CAD packages to the public. Some are so intuitive that even children can become accomplished designers with minimal time or financial investment. Among the most popular free alternatives to the expensive, cumbersome software of the past are the web-based Tinkercad and the open-source parametric modeler FreeCAD. Recently reaching its milestone version 1.0, FreeCAD is powerful enough to not only design complex models but also perform structural integrity simulations on them.



From design to reality

WORDS			
accomplished	기량이 뛰어난	domain	영역
advent	도래	methodology	방법론
conceptualize	개념화하다	sophisticated	정교한
cumbersome	번거로운	structural integrity	구조적 무결성

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