## Making technology relevant with current events

## by Ilaria Piccioli

# ANTICIPATING VOCABULARY & CONTENT

- What can you see in the picture?
- Describe the setting
- What do you know about the car shown in the picture?
- Have you ever seen anything similar in the place where you live?
- Do you think you will see/try one of these cars soon?

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(From <u>www.extremetech.com</u>)

## **3 KEY IDEAS**

Every key idea consists of a brief statement and a supporting detail.

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Key Word	Information	Memory Cue		
	(Definition of the Word)	(Sentence or Picture)		

## **K.I.M. VOCABULARY CHART**

### **Portland Opens Its Streets to Self-Driving Cars**



Karen Weise <u>@KYWEISEMore stories by Karen Weise</u>19 aprile 2017 17:00 CEST

Autonomous vehicles need to drive and drive and drive, vacuuming up hours of real-life encounters on the road to make their algorithms smarter and safer.

But there's one thing in relative short supply: cities willing to have test cars on their streets. Portland, Oregon, is trying to change that and be what it says would be the first to issue permits for driverless vehicles, with the goal of getting them on its roads this year.

"The technology is coming," says Mayor Ted Wheeler. "Either the technology will happen to us, or we are going to shape the playing field."

Wheeler and Transportation Commissioner Dan Saltzman are directing the Portland Bureau of Transportation to create a policy to open up the city's streets to self-driving cars. As part of a new initiative, the agency would have 60 days to develop a set of rules for pilot programs to deploy and test autonomous vehicles. It's looking at issues such as the cost of a permit and methods of reporting when and where the cars will be on the road.

The city will solicit proposals from companies working on driverless cars to gauge how they can help Portland reach its goals of reducing carbon emissions and providing equitable service. The city would also consider providing financial support for businesses to test autonomous transit vehicles, such as shuttles or buses, that could potentially connect passengers to its existing transit infrastructure. Wheeler says two years of pilot testing would inform final rules: "If we wait five years, my concern is we are not going to have a say in the matter at all."

Only 6 percent of cities contemplate a driverless future in their planning, and

the industry itself doesn't agree on regulations. General Motors Co., for example, testified in favor of a bill pending in Oregon's legislature, while a coalition that includes Ford Motor Co. and Alphabet Inc.'s Waymo, oppose it. Finding friendly cities to allow testing is the biggest challenge Uber Technologies Inc. faces in developing driverless cars, Senior Vice President Emil Michael said at a conference in February, according to CNBC.

Officials want to get ahead of the technology rather than find themselves flat-footed. as happened in late 2014 when Uber started operating its ride-hailing service in Portland without approval, an affront to a city obsessed with process. Portland hauled Uber to court and held the ride-hailing company at bay for several months, while the city, community members, and Uber's lobbyists belabored over writing new rules that ultimately met Uber's needs. Most of the major players working on autonomous vehicles have contacted the city about testing, but the city declined to name them because of nondisclosure agreements. General Motors, Lyft Inc., and Daimler AG were among those that wanted to partner with Portland on autonomous transportation as part of Portland's submission for the U.S. Department of Transportation Smart City Challenge last year.

If the city's plan works out, driverless cars can learn more about maneuvering in the rain while dodging Portland's many modes of transit, from light rail trains and buses, to pedestrians and unicycles.

(From <u>www.bloomberg.com</u>)

## SELF DRIVING CARS

### 1939

The concept is introduced at a World's Fair by GM

### 1977

Japan comes up with a fully autonomous car

### 1980s

Europe gains a footing in AVs with Navlab, ALV and EUREKA

### 2014

Google releases a prototype of a 100% autonomous car

### 2015

Tesla releases a level 2 -3 AV as a software update



### FUN FACTS

100% autonomous cars expected to be released to the general public by 2021

WIRED anticipates that by 2040, people will no longer need driving licenses!

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### TECH

A combination of GPS, Radar, lidar, odometry and computer vision

## 6 Levels of autonomy

Lv 0: Can only issue warnings Lv 1 -2: Limited driver assistance Lv 3: Limited autonomy Lv 4: Highly autonomous Lv 5: 100% autonomous



### **GLOSSARY**

AV: Autonomous Vehicle

**PROTOTYPE:** a first or preliminary version of a vehicle

LIDAR: a surveying method that measures distance to a target by illuminating that target with a pulsed laser light, and measuring the reflected pulses with a sensor

**ODOMETRY**: the use of data from motion sensors to estimate change in position over time

### **BACKGROUND INFORMATION**

### What is an Autonomous Car?

Self-driven cars, also called autonomous cars, driverless cars, AI cars or robotic cars, are cars that do not require human input to navigate while driving. They use an array of software and technologies to achieve this, including <u>GPS</u>, radar, lidar, odometry and computer vision. The cars are equipped with sensors that allow them to detect obstacles along the way, be it a pedestrian, another vehicle, whether parked or in transit. And of course, they have a robust GPS system to navigate the right path to its chosen destination.

### How long before we have Driverless Cars?

It may be hard to believe, but the concept of driverless cars was introduced to the world way back in 1939 at the Futurama exhibit by General Motors at the World Fair. Not surprisingly, Japan soon came up with an autonomous car that used cameras and analogue computing to process signals around 1977. Later, the development of autonomous cars gained a footing in Europe in 1980s, with the Navlab and ALV by Carnegie Mellon University in 1984 and the EUREKA Prometheus Project by Mercedes-Benz and Bundeswehr University Munich in 1987. Since then, many major companies have entered the fray with model after model of driverless cars.

### 6 Levels of Autonomy

## There are 6 levels of autonomy to a driverless car from no autonomy to fully autonomous –

- 1. Level 0: Where the Automation System (AS) has no vehicle control, but may issue warnings.
- 2. Level 1:Driver must be ready to take control at anytime. AS may include features such as Adaptive Cruise Control (ACC), Parking Assistance with automated steering, and Lane Keeping Assistance (LKA) Type II in any combination.
- 3. Level 2: The driver is obliged to detect objects and events and respond if the AS fails to respond properly. The AS executes accelerating, braking, and steering and can deactivate immediately upon takeover by the driver.

- 4. Level 3: Within known, limited environments (such as freeways), the driver can safely turn their attention away from driving tasks.
- 5. **Level 4:** The AS can control the vehicle in all but a few environments such as severe weather. The driver must enable the AS only when it is safe to do so. When enabled, driver attention is not required.
- 6. Level 5: Other than setting the destination and starting the system, no human intervention is required. The AS can drive to any location where it is legal to drive

Tesla motors first rolled out the Tesla Autopilot in 2015 with a software update. The car saw its first fatal accident in May 2016, and Tesla Motors has since doubled its already considerable efforts to remind drivers that even with the Autopilot feature, drivers still have to remain alert and ready to take control of the vehicle.

### **Google's Driverless Cars**

Google has also rolled out prototypes of "Google cars" that are 100% autonomous, i.e. level 5. This means they don't have steering wheels, or gas / brake pedals. They are currently undergoing rigorous tests to ensure their safety before they're released to the general public.

### THE MAIN FEATURES OF A DRIVERLESS CAR



From www.business insider.com

## **TWEET TEMPLATE**



ORAL PRESENTATION ASSESSMENT RUBRIC	Excellent 4	Good 3	Fair 2	Poor 1	Assessment
Quality of information	Covers topic thoroughly, includes details that support the topic	Includes essential information, includes some supporting details	Includes most essential information, details are somewhat sketchy	Lacks essential information	
Organization	Well organized and coherent, topics are in logical sequence, includes clear introduction and conclusions	Organized, some topics are out of logical order, conclusions are generally clear	Some organization, topics jump around, conclusions are unclear	Not organized, topics make no sense	
Grammar and spelling	All grammar and spelling are correct	Only few errors	Some errors	Very frequent grammar and/or spelling errors	
Visual design	Visually appealing, clean simple layout, text is easy to read, graphics enhance understanding of ideas	Visually attractive, text is easy to read, colors enhance readability, graphics and special effects do not distract from understandin g ideas	Text is sometimes hard to read, sometimes graphics or special effects distract from understanding	Text is very difficult to read, layout is cluttered and confusing	
Oral presentation	Well prepared, speaks clearly, makes eye contact with audience, delivers with ease, invites questions	Engages audience, fluid delivery, uses different approach other than simply reading screen, invites questions	Clear and understandable , uses limited delivery techniques	Not clear, not understandable	
				Total	

	WRITTEN REPORT ASSESSMENT RUBRIC				
TRAITS	5	4	3	2	1
FOCUS AND DETAILS	Clear, excellent focused topic. Main ideas are clear and are excellently supported by very detailed and accurate information.	Clear, well focused topic. Main ideas are clear and are well supported by detailed information.	Clear, well focused topic. Main ideas are clear but are not always supported by detailed information.	There is one topic. Main ideas are not always clear.	The topic and main ideas are not clear.
ORGANIZATION	The introduction states the main topic and provides a very effective overview of the paper. Information is relevant and presented in a logical order. The conclusion is strong.	The introduction states the main topic and provides an overview of the paper. Information is relevant and presented in a logical order. A conclusion is included.	The introduction states the main topic and provides an overview of the paper. A conclusion is included.	The introduction states the main topic. A conclusion is included.	There is no clear introduction, structure, or conclusion.
WORD CHOICE	The choice and placement of words is accurate and sounds natural.	The choice and placement of words is accurate and correct.	The author uses words that communicate clearly, but the writing lacks variety.	The choice and placement of words is not always accurate.	The writer uses a limited vocabulary. Jargon or clichés may be present.
SENTENCE STRUCTURE, GRAMMAR, SPELLING	All sentences are well constructed. The author makes no errors in grammar and/or spelling.	All sentences are well constructed. The author makes only a few minor errors in grammar and/or spelling.	Most sentences are well constructed. The author makes a few errors in grammar, and/or spelling, but they do not interfere with understanding 	Most sentences are well constructed, but they have a similar structure and/or length. The author makes several errors in grammar, and/or spelling that sometimes interfere with understanding.	Sentences sound awkward and repetitive, or are difficult to understand. The author makes numerous errors in grammar, and/or spelling that interfere with understanding.
	TOTAL SCO				

	WRITTEN SUMMARY ASSESSMENT RUBRIC				
TRAITS	5	4	3	2	1
KNOWLEDGE AND UNDERSTANDING	The main ideas of the text are clearly explained. All important facts supporting the main ideas are included.	The main ideas of the text are clearly explained. Almost all important facts supporting the main ideas are included.	The main ideas of the text are explained. Many important facts supporting the main ideas are included.	Some of the main ideas of the text are explained. Some important facts supporting the main ideas are included.	The main idea of the text is not clearly explained. No or very few important facts supporting the main idea are included.
ORGANIZATION	All the important ideas are in logical order.	Almost all the important ideas are in logical order.	Most of the important ideas are in logical order.	Some of the important ideas are in logical order.	Important ideas are not in logical order.
WORD CHOICE	The summary is thoroughly written in the student's words	The summary is effectively written in the student's words	The summary is mostly written in the student's words.	Many phrases and sentences are copied from the text.	Most phrases and sentences are copied from the text.
SENTENCE STRUCTURE, GRAMMAR, SPELLING	All sentences are very well constructed. The author makes no errors in grammar and/or spelling	Almost all sentences are well constructed. The author makes very few errors in grammar and/or spelling	Most sentences are well constructed. The author makes a few errors in grammar, and/or spelling, but they do not interfere with understanding	Most sentences are well constructed, but they have a similar structure and/or length. The author makes several errors in grammar, and/or spelling that sometimes interfere with understanding.	Sentences sound awkward and repetitive, or are difficult to understand. The author makes numerous errors in grammar, and/or spelling that interfere with understanding.
TOTAL SCORE					

### Alcune utili risorse online per una didattica multimediale

 www.blendspace.com progetti di vario genere. ideale per lezioni condivise, flipped classroom,

- www.dropbox.com per condividere materiale di vario genere
- www.popplet.com per realizzare mappe concettuali
- www.studystack.com per salavare e condividere flashcards
- www.educreations.com per creare accattivanti presentazioni
- www.wevideo.com per creare video
- www.runistar.4teachers.org/index.php per realizzare griglie di valutazione
- www.utellstory.com per creare storie

## Excerpts from the books by Ilaria Piccioli

## published by Editrice san Marco

- Take the Wheel Again New Edition
- High Tech
- Connect
- Under Construction



### OW TO SUMMARISE A TEXT

A text generally contains paragraphs. A paragraph is a group of related sentences that develop an idea. In order to understand and report about the contents of a passage, remember the following guidelines:

- identify the **paragraphs**;
- find the **main concepts** or ideas in each paragraph;
- find the **extra information** (major and minor details).

If you were to organise the paragraph above into its three main components, it would look like the following.

Read the following sample paragraph and then look at the chart below.

#### Metal Recycling

EXAMPLE

Metal recycling is a process whereby scrap, involuntary by-products of manufacturing, are recognised as still having economic value and are turned back into new materials.

Iron and steel are the most recycled metals of all. Scrap metal markets are highly developed since metals have significant economic value. Mining and processing virgin ores is expensive and envi-

ronmentally unfriendly. Taking cast-off products and using them in the creation of new products saves numerous steps in the manufacturing process. Moreover, reduced energy requirements are significant and less pollution is created.



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**Environment** 



#### HOW TO WRITE A REPORT

Writing reports is a common high school activity which may also prove useful in professional contexts. Here are some steps to follow in order to write a good report.

#### 1 FOCUS ON WHAT THE REPORT SHOULD BE ABOUT

Read the assignment carefully and highlight key words and main points.

#### **2 DO THE RESEARCH**

Remember that in order to write a report you must find further sources about what you have been learning in class.

#### **3 WRITE AN OUTLINE**

You can use different formats like lists, mind maps, spidergrams, etc. This will help you to figure out the best way to order the ideas in your report.The idea that's most closely linked to your thesis should come first.

#### **4 START WRITING**

- Your report should be divided into some general sections including:
- introduction this will contain your thesis;
- body paragraphs they will contain the main ideas you generated in your outline; each idea should have its own paragraph, and it should connect to the paragraphs around it in some way;
- conclusion it should consist of a few sentences in which you restate why your thesis is true.

#### 5 PROOFREAD YOUR REPORT

Print out a draft of your report and read it over carefully. Make corrections.

#### WRITING

- ✓ In this module you have read different texts dealing with the environment and the relationship between man and nature. Write a report (approx. 200 words) on human impact on the environment. You can organize it as follows.
  - Brief introduction Provide a definition of environment.
  - Focus on the relationship between man and the environment Talk about the exploitation of resources, pollution and the negative effects of human activities on global climate.
  - Suggest possible solutions Talk about alternative energy sources and how to create an environmental awareness.





#### UK RESIDENTS' RECYCLING HABITS

You will listen to a radio news programme about the recycling habits of British people. Before listening look at the meaning of the following words: • householders are people who occupy or own a house;

(4

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## editrice

### **NEW ROBOTS LOOK STRIKINGLY HUMAN**

he ultra-lifelike robot Repliee Q1 is so lifelike that roboticists may want to start working on a Bladerunner-style Voight-Kampff test now.

Repliee Q1 has silicone for skin, rather than hard plastic. It has a number of sensors to allow it to react in a manner that appears natural; it appears to flutter<sup>1</sup> its eyelids, chest movements correspond to breathing, and other tiny shifts in position that mimic unconscious human movement.

The android can also mimic actions made by a human; this helps the robot's movements appear more lifelike. By facing a person with reflective dots placed at key points (like wrist, elbow, palm), the robot can try to match those points on its own body with those of the person who is "modeling" human movement.

The greatest limit to the lifelike movement of the robot is that it has only 31 actuators in its upper body; a nearby air compressor provides the energy needed for articulation.

In his excellent novel Do Androids Dream of Electric Sheep?, Philip K. Dick explores what happens in a society when android replica humans cannot be physically

The Voight-Kampff machine or device is a fictional tool originating in Philip K Dick's science fiction novel Do Androids Dream of Electric Sheep? It is a polygraph-like machine used in the film by Blade Runner units to assist in the testing of an individual to see if he or she is a replicant. It measures bodily functions such

as respiration, "blush response", heart rate and eye movement in response to emotionally provocative questions.

fished out<sup>3</sup> the Voight-Kampff apparatus, seated himself at a nearby rosewood coffee table, and began to assemble the rather simple polygraphic instruments. San Francisco's Wave magazine recently

wondered whether or not candidates for their mayoral elections were humans or androids; they applied an empathy test to make sure.

(Adapted from Live Science)

### VOCABULARY

- Explain in your own words the meaning of the following terms and expressions.
- 1 Lifelike
- Sensors
- **3** Eyelids
- 4 Energy

#### WRITING

Summarize the article above.

- **5** Mayoral elections
- 6 Mimic

distinguished from human beings. Only

the Voight-Kampff empathy test can make

the distinction, when used by a trained

officer like Rick Deckard: "I'm not a

peace officer," Rick said. "I'm a bounty

hunter<sup>2</sup>." From his opened briefcase he

- ⑦ Unconscious
- 8 Empathy

1



GI.OSSARY

1 move with a light

3 picked out

irregular motion

2 a person who pursues

criminals for a reward

## ACTIVITIES

**WWW-015** 



# Effects of global warming on the Amazon rainforest

editrice

san marc

The Amazon rainforest's dry season lasts three weeks longer than it did 30 years ago, and the likely culprit is global warming, a new study finds.

Rain falls year-round in the Amazon, but most of the annual deluge drops during the wet season. Scientists think that a longer dry season will stress trees, raising the risk of wildfires and forest dieback.

"The length of the dry season in the southern Amazon is the most important climate condition controlling the rainforest," Rong Fu, a climate scientist at the University of Texas at Austin's Jackson School of Geosciences, said in a statement. "If the dry season is too long, the rainforest will not survive."

The new findings forecast a more parched future for the Amazon rainforest than the climate report released last month by the Intergovernmental Panel on Climate Change (IPCC), the study authors said. The IPCC models predict the Amazon dry season will last three to ten days longer by 2100.

But with the dry season already spanning an extra week each decade since 1979, the Texas team said the future effects will be more severe.

Fu and her colleagues analysed rainfall patterns across the Southern Amazon rainforest since 1979, and plugged the data into 50 simulations from eight climate models.

The climate models from the IPCC's AR5 report, released in September, reported smaller dry season changes than actually measured since 1979. This means the IPCC models likely underestimate future predictions of rainforest climate change effects, the researchers conclude.

(Adapted from www.livescience.com)



#### ACTIVITIES

- **1** Summarise the article above.
- **2** Explain in your own words the meaning of the following words and expression.
  - 1 Dry season
  - 2 Culprit
  - 3 Wildfire
- .....
- .....
- 4 Forest dieback5 Decade
- 6 Intergovernmental
- .....







D uring the EMO machine tool show in Hannover, Germany, Siemens officials briefed the U.S. trade press on the state of the industry and the products and strategies Siemens would bring to the market.

Drivers in the machine tool market are to boost efficiency, including energy efficiency, to reduce the time to market and to increase machine flexibility, explained Bernd Heuchemer, global VP of marketing and communications for Siemens AG, drive technologies division, motion control systems business Heuchemer sees a day when all machines on shop floor will be connected to each other and their efficiency will increase by 50%. "In 10-15 years we will have more optimization. We are on our way to the future."

For the present, the market continues to meet demand, but there's no large push to race past it. Rajas Sukthankar, general manager for the machine tool systems business at Siemens Industry Inc., told the media that the slowing markets in China and slow economic recovery elsewhere will lead to a flat machine tool market in the next months. That will also concern the U.S., despite solid growth in automotive and expansion of oil and gas markets. Chris Pollack, the dealer support manager for Siemens Industry Inc., said the CNC line in display at EMO would address the needs in the market for intelligent machine operations.

"It bridges the gap between the control operation and the applications they are used in," Pollack said. He said the Sinumerik Integrate for Production product suite solution on display at EMO would address the issues of costs for hardware, commissioning, and scalability that he said have limited IT investments in machine tools in some cases.

The innovations presented by Siemens at the EMO 2013 will focus on smart function improvements, which will make for greater CNC operating convenience, increase precision at the workpiece, and allow greater machining safety across every category of machine, from the compact to the high-end solution. A new function to protect against unwanted component collisions will be showcased by Siemens, for example, alongside improvements to its cohesive Sinumerik Operate user interface, including upgraded simulation options.

(Adapted from www.plantengineering.com)

#### WRITING

Modulo 2

Summarize the article above.



I. Piccioli, HIGH TECH

### editrice san m



I. Piccioli, Under Construction

### **BUILDING SUSTAINABLE SCHOOLS**

avid Lloyd Jones is a British architect based in London, who has for several years specialised in designing and building sustainable schools. Through his architectural practise, Studio E Architects, Lloyd Jones and his team have won several contracts and competitions.

During a recent international green architectural and design seminar,<sup>1</sup> he gave a lecture and workshop where he discussed at length some of his projects, the green motivation behind them, and the particular sustainable vision that went into them. He and Studio E Architects have been responsible for Newark Primary school, Inverclyde Academy, Upland Primary school, college boarding houses and technology centres, as well as 2 London Academies at Southwark and Hackney, amongst many others.

Lloyd Jones spoke passionately of his belief in planning ahead now for future generations as part of his motivation in working on school buildings. He sees education and sustainability as two key issues that are very closely linked, and are crucial for the sake of the future survival of humanity and our planet.

"In my experience, most sustainable building designs and projects are a blend of the local climate, the sustainable technology and materials that are available and affordable,<sup>2</sup> and the local culture – that is, who is going to be involved in the project and actually use the building once complete," Lloyd Jones said in a short interview after his lecture: "All these elements come together in the site - where the existing school is, and what is actually on the site right now, be it existing buildings, rundown<sup>3</sup> buildings, no buildings at all, a recreational field, or whatever."

The first part of Lloyd Jones' projects always starts with the wish to engage with the school and the local community. He asks them the same question: "what sort of school do you want?", and then he



1 a small group of advanced students in a college or graduate school engaged in original research or intensive study under the guidance of a professor 2 relatively low in

price

and his team engage everyone in working out together exactly the answer to this question. He said that the motivation behind this is to "engage and influence young minds": when the children themselves see that they are invited to engage in a design and discussion process, they have a stake in the future, through their school and as part of the local community.

He spoke more about the joy of working with school children as they imagined the kind of school they would want to be in and learn within. At one of his projects, a primary school, the children repeatedly talked about an observatory to see the planets, and Lloyd Jones was able to design and build a unique stand alone classroom in a corner of the playground, that contains an observatory area.

(Adapted from sustainablebuild.co.uk)

### **READING COMPREHENSION**

Answer the following questions.

- 1 Who is David Lloyd Jones?
- 2 Where does he work?
- ④ What kind of buildings does he design?

- **ACTIVITIES**
- 5 Why does he think sustainability is so important in architecture?
- <sup>6</sup> What are sustainable buildings based on in his opinion?

### SYNONYMS

- Read the text again and find synonyms for the following words.
- 1 Planners .....
- 2 Speech .....
- 3 Topics .....
- (4) Mixture .....

### WRITING

- Summarize the passage above.
- 5 Finished 6 Desire 7 Kind ..... 8 To watch .....

- 3 dilapidated