



## CEC Primary Project

### Careers for 2030 – Road Map 7

#### Transport Sector

#### Teachers Guidance

*This event consists of 5 presentations accompanied by audio. This guide will take you through each slide step by step.*

*Questions in **RED** are a prompt for classroom teachers to ask children in order to generate discussions.*

*At the end of this guide there are a series of activities for you to utilise and implement when time allows.*

#### **First Presentation by Nicki Harris (Project Officer)**

##### **Slide 1 – Introduction**

Today we are exploring the transport sector and careers for 2030. **What type of careers do you think we will be exploring?** Drone pilots, designers, autonomous vehicles and smart technology

##### **Slide 2 – Task 1**

Think about what type of career you would like when you leave education. Have a minute to chat with the person sitting next to you. Do you see yourself doing something practical, working with IT, Sports, working indoors or outdoors, caring for others or working with animals? **Tell your teacher what you would like to do and why?**

##### **Slide 3 – What is Transport?**

Transport is a way of moving people or items from place to place.

There are 4 types of transport **Can you think of what they are?** Airways, roadways, railways and waterways. **What do you think the most popular type of transport is?** Travel by car, followed by buses and trains. **What is the fastest type of transport?** Aeroplane **What is the most dangerous type of transport?** Motorbike



#### **Slide 4 – History of Transport – facts**

The first car was made by Henry Ford in the 1900's in America. **How did people travel from place to place 1000 years ago?** They used their legs to walk and run or used the help of animals (horse, donkey, Oxon). The wheel was invented 5000 years ago and had a massive impact on travel and the ability to move things around. Steam trains were developed in 1800's, air travel by 1900 and space travel was achieved in 1961 by the Russians.

#### **Slide 5 – What careers didn't exist in this sector 10 years ago?**

It has been predicted that there will be an additional 1 billion cars on the road by 2030/2035. **What will this cause? How will this impact on the environment?** *Increase emissions and traffic jams or congestion. The future of cars is electric because they produce no emissions. This will have an impact on the types of careers there will be in this sector. 10 years ago, there were no iPhones and therefore no iPhone apps or iPhone app developers. Now there are literally 1000's of apps that we use every day.*

Examples used in the transport sector include:-

Google maps – **What do you think this app does?** *No matter where you are in the UK, Google Maps, has a very detailed database of transport options and a smart route with live traffic information for you to follow to get to your destination. Who has used Google Maps?*

City Mapper – **What do you think this App does?** City Mapper is very easy to use and it is similar to Google maps but will focus on particular city.

Uber App - **What do you think this App does?** *A taxi service that is a pre-paid App and literally takes you door to door. Uber App is very safe to use.*

Electric Car Engineers? **What do you think they will do?** *Cars won't mend themselves, so engineers, mechanics and software developers will be in demand.*



## Slide 6 – What careers will exist in 10 years' time?

*In 10 years' time automation and technology will come together. It is predicted that there will be shift of the workforce which means we will be doing different jobs. At the train station or airport there is always a café or place to have a meal. Many of these services will become automated and done by artificial intelligence or robots. Careers will be created as software designers, engineers and programmers. Shops, trains and aeroplanes will become autonomous. **What does autonomous mean?** Autonomous means self-driving transport such as a car in which human drivers are not required to take control. They use sensors and software to control and navigate the vehicle.*

***What type of careers will be in demand?** Software designers, engineers to mend cars, programmers and users will be in high demand. Operators and drivers will be working remotely from call centres, offices or from home. An example of an automated **rapid train system** is - The Dubai metro redline which is fully automated and driverless, fully air-conditioned and very efficient.*

***What do customer services do?** They are there to offer advice to customers. In 10 years' time chatbots will be used for the majority of customer service roles. They will be capable of written and spoken services, in any language. **What is a Chatbot?** An automated system or robot. **Has anyone used a chatbot? If yes – when and where?** I have used a chat bot, when I reported a crime to action fraud online. Last year someone used my personal details to open a credit card and purchased £500 worth of goods in my name! Action fraud uses chatbots and they help me solve my problem. The chatbot took my details and we had a full conversation. Within 24 hours I had a crime reference number and was able to solve my problem. **What do you think chat bots will be used for in the transport sector?** They will be used to take ticket bookings, give travel advice, and help to plan journeys. Jobs will be created in software development, programming, repair and training.*



## Slide 7 – The future of transport

*There are 3 themes for the next 10, 20 and 30 years. They are:*

Smart Technology – **What do you think this is?**

*SMART means Self-Monitoring Analysis and Reporting Technology. This is used to protect and prevent any errors in hard drives. **What are hard drives?** They are used by a computer to store all our information. So, they do a very important job and have to be kept “healthy”.*

Electrification – **What do you think this means?**

*Simply means the flow of electrical power or charge. Some cars use electrical power or electricity to make them work.*

Autonomy – **What do you think this means?**

*Self-driving, such as an autonomous car that doesn't need a human driver.*

## Slide 8 – The future of transport

**What do you think the future of transport will look like?** *AAV's or Autonomous Ariel Vehicles – **What do you think they are?** They are autonomous vehicles, similar to drones, but will be able to carry passengers from place to place. **What advantages do you think the AAV will have over types of transport?** They will remove traffic congestion and save time as well as reduce emissions.*

*Examples include –*

*The Ehang 184 uses 5G connection and is controlled by smart technology. Although the Ehang 184 is called a **drone**, it's essentially a mini helicopter that's designed to fly a **human** passenger all on its own. The vehicle runs on four propellers and is completely electric. It also **could** only **carry** one passenger, or at most 220 pounds of weight at any one time.*

*The world's first Air Taxi is due to be launched in Qatar for use at the Fifa World Cup 2022. Careers will be created in design, planning and programmers in SMART technology.*



## **Slide 9 – The future of Transport**

Hover bikes – **What do you think hover bikes are?** They were invented by hover surf in Russia and they are similar to a drone but look like a motorbike and requires a human operator. Careers will exist in designing, programming software, and training and as operators, repair and SMART technology.

## **Slide 10 – The future of transport**

Self-driving taxis – **What is another word we use instead of self-driving?** Autonomous. Using ICT these taxis communicate with each other using SMART technology. These are being used in Las Vegas and can be programmed and prepaid using an APP on your iPhone. Careers will be created in design, programming, planning, training, and repair and in SMART technology.

## **Slide 11 – The future of Transport**

The Hyperloop **What do you think this is?** The Hyperloop is designed for travelling between Cities inside a capsule of pods that travel at very high speeds through tubes. This Hyperloop is currently being trialled in Apex, Nevada (USA), India, Canada and Mexico.

Careers will be created as designers, programmers, using SMART technology, engineers and trainers.

**Which mode of modern transport most appeals to you and why?**

- The autonomous Ariel vehicle or passenger drone?
- The hover bike?
- The self-driving taxi?
- Or the Hyperloop?



## **Slide 12 - The future of transport**

- YouTube Links – you will find these very interesting!
- Link 1 – shows autonomous Pizza delivery
- Link 2 – shows autonomous grocery delivery
- Link 3 – Shows delivery with a “motorship concept”

*Take a look*

**What does autonomous mean?** *Self-driving transport in which humans are not required.*

**What do you think of these delivery gadgets?** *Discuss this with your class*

## **Slide 13 – The future of transport**

- Link 1 – Explores the future of sky-drive 2030 and flying cars
- Link 2 – Explores self-driving cars
- Link 3 – Explores sustainable air travel with KLM.

**What is another word for self-driving?** *Autonomous*

**Would you feel safe to use a sky-drive flying car? Why, why not?**

**Do you think KLM air travel is sustainable? Why, why not?**

**What does sustainable mean?** *Something that can be kept going for a long time for future generations. It won't run out*

## **Slide 14 – The future of transport**

- Links 1 and 2 explain how DPD are using electric vehicles DPD new delivery solutions with zero emissions.

dpd are one of the presenters for today's event.

**Do you think that electric cars are the future? Yes, No, why?**

**Do you think we should ALL be using electric cars?**



## Slide 15 – Top essential skills

What personal skills do you think are important and why? Do you think these will change in the future? If yes, why?

Spend a few minutes discussing this with the person next to you. What have you come up with?

**Slide 16** – *You will now hear presentations from a range of guest speakers.*

*Grace Hayward - Assistant Delivery Manager at Midland Metro Alliance.*

*Chris - Driver Customer Service Representative and Crew supervisor and is employed by West Midlands Metro.*

*Olly Craughan – General Manager of Corporate Social Responsibility – DPD*

*Jacqui – Travel and transport Advisor – Transport for West Midlands*

## **Second Presentation by Grace Hayward -Assistant Delivery Manager at Midland Metro Alliance – Slide 1**

### **Slide 2 – My Career**

Grace graduated from Birmingham University with a master's degree in Chemical Engineering. **Does anyone know what types of things Grace studied?** Chemical engineering is all about making products for things like beer, medicines, shampoo, and any chemical that is produced on a very large scale for large national companies.

Grace then joined Colas Rail and focused on project management. She gained a lot of experience about managing projects and people during her time at Colas rail. The first thing she did was to spend time at the depot in Rugby where she focused on technology and the competencies of freight train drivers across the UK. **So what does this mean? What is a freight train?** This is a train that is used for carrying goods rather than people. **What sort of things can be transported?** Cars, aeroplanes parts and animals. **What does competence mean?** Competence is your skill or ability in a specific field or subject, or being able to do something well



Grace also took a 6 month secondment to Paris where she worked on the construction of trams and light rail. Grace wanted to learn as much as she could to bring this learning back to the UK. **What is a secondment?** This means Grace was sent somewhere else to work on a temporary basis. **Do you think it's a good idea to work in different countries? Why?**

Grace returned to the UK and as part of her graduate programme she worked in the urban division at Midland Metro Alliance and worked on the new tram lines. She continues to work on the tram lines across the West Midlands.

### **Slide 3 – A typical day**

Grace never has 2 days the same – every day is different. Grace attends many meetings and has to manage a lot of people and put together a range of timetables. She talks to her boss about budgets. **What is a budget?** Budget is how much money is needed for each project.

Grace will organise labour and work out how many staff are required for each part of the project. She will also deliver safety briefings on a daily basis. **Why is Health and Safety important?** Following Health and Safety rules at work keep us safe and Grace will make sure that all staff are following rules and wearing Personal protective equipment. **What equipment do you think the team need to wear when they are working on the train lines?** A hard hat, high visual clothes so they can be easily seen if they are working on the rail and tram lines and safety boots. Grace makes sure the projects are successful. **What do you think makes a successful project?** A successful project is one that's completed on time, in budget which means the company has not had to spend more money that they planned for.

### **Slide 4 – How will my role change by 2030?**

Grace is very keen to climb the ladder and get promoted. She is also keen to have a good work- life balance. One where she can find time to spend with her family. **Do you think a life work balance is important? Why?**



## **Slide 5 – The use of technology and how it will change**

Drivers are using virtual reality or VR to help them learn new routes. Drivers also get tested every 3 months to make sure they know what they are doing and to make sure they follow strict rules about speed limits when driving trains and trams. In other words they have to take a test 4 times every year. **Do you think this is important?**

## **Slide 6 – closing comments.**

Grace offers the following advice: 1. Try hard at school and college, 2. Find something that you really enjoy and turn it into a career, 3. Focus and you will succeed (aim high), 4. Never think you are not good enough and do your research and 5. Find out about the different careers you are interested in.

## **Third presentation by Chris – Driver Service representative and crew supervisor at West Midlands Metro - slide 1**

### **Slide 2 – My career**

Chris has a very long title - Driver Customer Service Representative and Crew Supervisor and is employed by West Midlands Metro. Chris has been there for over 2 years and **what do you think his job involves?** Chris takes care of his customers and makes sure they get to their destinations. Chris is always happy and puts a smile on everyone's face!

### **Slide 3 – What does a typical day look like?**

Chris has set tasks he has to carry out every day. These include - checking the tram to make sure it is clean and tidy and that everything works how it should. **Do you think this is an important part of Chris' job? Why?** Customers would not want to travel on dirty messy trains or trams and it's important to keep them happy so they continue to use public transport. Chris also drives the tram from point A to B, this will vary depending on which tram line Chris is working on. Chris also has to check that all the people traveling on the tram have a valid ticket or pass. These people are called passengers. **Has anyone used a tram in the West Midlands? If so where did you travel to and from? Was it a good experience?**



#### **Slide 4 – How will my role change by 2030?**

The tram network is expanding and new lines are being extended all the time, so West Midlands Metro will be looking at employing more people to cope with the demand. In time trains will become autonomous. **What does autonomous mean?** Autonomous means self-driving transport such as a tram in which human drivers are not required to take control. They use sensors and software to control and navigate the tram. Careers in software design, engineers and programming will be in high demand. Operators and controllers will be working remotely from call centres, offices or even from their homes.

Conductors will not be needed as everything will be done by machines or chatbots. Remember what we discussed in the opening presentation, Chatbots will be used to issue tickets and will be able to translate every spoken language. **Do you think this is a good idea and why?** Careers will be created in software programming and engineering

#### **Slide 5 – The use of technology**

West Midlands Metro have invested in a new control room. **What is a control room?** A **control room** is a central space where a service can be monitored and controlled. Chris sometimes works in the control room and can see what's happening on the tram and train lines across the area. He can make sure that everything is as it should be from one room.

West Midlands Metro are currently building a state of the art control room that will be digital and very modern. It will include – touch screen technology,

#### **Slide 6 – Closing comments**

Chris really enjoys his job and says it's really exciting being a tram driver. As a tram driver you get to meet lots of different people such as teachers, nurses, students, families and people from all corners of society.

The future of tram driving is expanding and there will be new trams, more stops, new technology and more jobs created. **After hearing from Chris, is anyone interested in being a tram driver? If so, why?**



## **Fourth Presentation by Olly Craughan – General Manager of Corporate Social Responsibility – dpd – Slide 1**

### **Slide 2 – My career**

Olly Craughan joined *dpd* in 2012 as an operations manager. He made sure that all parcels were processed and delivered on time. In 8 years the amount of parcels that were delivered increased from 1500 to 13,000 every day.

Olly was promoted to General Manager of Corporates and Social Responsibility (or CSR for short) and helps the business fulfil its environmental, sustainability and social strategy and plans for the future. **Can you remember what sustainability means?** Sustainable means something that can continue for a long time – for future generations and means that it won't run out.

### **Slide 3 – What does a typical day look like?**

Olly always starts his day by checking his emails. He starts work at 8am until 5pm and sometimes if he is really busy he will not finish until 6pm. At 9am and 4pm, Olly has a team video call to discuss daily tasks and review projects with his team. **Do you think team meetings are a good idea? Why? What things would you discuss at a team meeting?** Team meetings are a good way to catch up with your team, to hear about the latest project update and any issues. It's about getting everyone together, so the team know exactly what's going on in the business and with each project they are working on.

Olly works closely with all teams including the transport department, where he is involved with the next electric vehicle and he will review it from a sustainability point of view. **What does sustainable mean?** In this case that electric cars will be around many years to come. It's technology that will last and is harmless to the environment.

Olly also manages projects working with the IT department to look at how they can minimise printer and paper usage. **Why is this important? Can you think of any ways in which you could reduce the amount of paper you use at school or home?**

He also works with the HR department to make sure all staff are well looked after. *dpd* have a wellbeing initiative in place and really care of their staff. They will help people who feel stressed cope better. **What does HR stand for? What do they do?** Human



resources and they will make sure people follow the rules at work, they are paid on time, with the correct amount, and they will look after the wellbeing of the staff and hire and fire people too.

Ollie will also review the website and make sure all information is up to date and current. There is a dedicated section to electric vehicles. **Why is it important that the website is kept up-to-date?** So customers are aware of what's going on now and projects for the future,

#### **Slide 4 – How will my role change by 2030?**

You will not be expected to travel to the office every day. *dpd* will supply you with all the equipment you need to work from home (lap top, internet connection etc.). **What would the advantage of working from home?** It will reduce travelling time to and from work. Some people travel for over an hour to get to their place of work, adding 2 hours onto their working day and this could be even longer if they are sitting in traffic congestion, you will not get distracted by colleagues in the office and will be able to focus on your task. Less travelling will also mean less emissions of CO<sub>2</sub>, which will have a positive impact on the environment

Team meetings will still be possible using zoom and Microsoft Teams. In fact you can work from anywhere in the world, all you need is access to a computer or iPhone and the internet.

The EU set a target to reduce greenhouse gas emissions (GHG) by at least 40% by 2030, so DPD is focused in increasing their electric vehicle fleet and ensuring that they deliver as many parcels using this electric fleet. PLEASE REFER TO THE YOUTUBE LINKS IN THE PRESENTATION

By 2030, Olly's role will become even more important to ensure that the company are environmentally and socially active in their approach by minimising the damage of CO<sub>2</sub> and pollution, and maximising their ability to help their staff and communities. **How will dpd reduce greenhouse gases and CO<sub>2</sub>?** By 2030 *dpd* will have an all-electric fleet of vehicles. **How will they help their staff?** Support staff and encourage them to work from home to reduce travel time to and from work and to encourage productivity, make sure



that staff are not stressed at work and provide support if they are. They want a happy and healthy workforce, so no one takes sick days or feels like they are unable to work.

### **Slide 5 – closing comments**

1. Focus, listen and learn as much as you can 2. Always ask questions if you are not sure of something 3. Have a plan to help you achieve your goals 4. Don't give up easily 5. Treat everyone with respect 6. Always say thank you, people will remember it 7. Be positive and always look at how tasks can be overcome, not how they can't be. **Do you have any quotes you stand by?** I always say "For every problem there is ALWAYS a solution"

### **Fifth presentation by Jacqui Miller – Travel and Transport Advisor – Transport for West Midlands – slide 1**

#### **Slide 2**

Jacqui studied French and Business at university. She started working for a French company selling steel. She was able to use her language skills to communicate with customers. **Do you think it's important to be able to speak more than one language? Why?** It will help you communicate with people from other countries which is good when they are your customers, learning a language will give you more opportunities to work abroad.

Jacqui joined Transport for West Midlands in 1999 working with businesses to help staff use buses, trains and trams to travel around. This role expanded in 2012 and Jacqui now works with schools, colleges and universities. We are being encouraged to use public transport more and more. **What do you think the advantages are, using a bus, train or tram to travel to work?** If more people use public transport there will be less congestion or traffic jams on the roads, less emissions which is good for the environment and it will cost less than running a car. Parking can be expensive and time looking for a space is wasted. **What about the disadvantages of using public transport?** Sometimes there are delays which will make you late for work or school and sometimes employees go on



strike and at busy times (called peak times) and public transport can sometimes be overcrowded.

### **Slide 3 – What does a typical day look like?**

Jacqui has a very interesting job and she gets to travel around the West Midlands on public transport to include busses, trains and trams. She talks to passengers and asks them how their journey has been and if they find it easy to use public transport and whether they think the rates are fair. Jacqui will ask them for feedback. **Why is feedback from customers important?** Feedback tells you how things can be improved and the customers opinion always matters. Without customers there would be no business.

Jacqui is working from home due to COVID so she spends her time contacting businesses and schools across the West Midlands informing them of new routes that will be opening in Birmingham, Dudley and Wolverhampton. They would not get to know about this unless they already use public transport. Jacqui encourages people to use busses, trains and trams and really enjoys this part of her job because it keeps people connected. **Do you think it's important for people to know about how public transport is improving and expanding?**

### **Slide 4 – How the role will change by 2030**

30 years ago Jacqui used desk telephones, fax, hand written or typed letters and post, and a shared computer to communicate with others. **What has replaced these items?** Now we have laptops to send emails, iPhone that are able to connect to other people instantly, social media and we use technology much more.

In the future Jacqui will be working from home more often but is still very keen to travel on public transport asking passengers for feedback. It's important to keep customers happy. **Do you think more people will use public transport in the future? Why?**

### **Slide 5 – The use of technology**

Jacqui uses a laptop and iPhone every day. She is able to work anywhere so long as she has a Wi-Fi connection. She is still very keen to meet people face to face and encourage people to use public transport.



If more people are encouraged to work from home, **do you think public transport will be needed as much in the future?**

**Do you think public transport will expand and less people will use cars?**

**Public transport vs cars?????? Which do you prefer and why?**

### **Slide 6 – Closing comments**

Jacqui really enjoys her job and enjoys helping people travel around the West Midlands. She has very kindly provided her contact email if schools or pupils want additional information about public transport and new routes.

**She said that is very important to find something you really enjoy**

## **RETURN TO THE MAIN PRESENTER – NICKI HARRIS – CLOSING COMMENTS**

### **Slide 17 -Task 2**

*Now you have listened to the presentation about Transport, **Would you consider a career in this sector?** Spend a few minutes discussing this with the person next to you. **Why, why not?***

### **Slide 18 – Task 3**

**Have any of the presenters inspired you? Why?**

**Has anything you have seen today, inspired you? Why?**

### **Slide 19 Questions and Answers**

If you have any questions, please ask your teacher.

If they are questions to any of the presenters, please email me on [nicki@mlw-ltd.com](mailto:nicki@mlw-ltd.com)

**Thank you for listening and good luck with whatever you chose to do!**



## **ACTIVITY 1 – SELECTION OF YOUTUBE LINKS**

Link 1 shows an autonomous pizza delivery robot

Link 2 shows an autonomous grocery delivery robot

Link 3 shows delivery with a “mothership concept”

<https://m.youtube.com/watch?v=ujzjZuhE92g>

<https://m.youtube.com/watch?v=AbQN-a2d1s0>

<https://m.youtube.com/watch?v=yUMOLzCsifs>

Link 1 explores the future of sky drive-2030- flying cars

Link 2 explores self-driving cars

Link 3 explore sustainable air travel with KLM (via vlog)

<https://m.youtube.com/watch?v=Rmah9HPKbgQ>

<https://m.youtube.com/watch?v=eCJo-2yjtLg>

[https://m.youtube.com/watch?v=cZJzD7bhE\\_Y](https://m.youtube.com/watch?v=cZJzD7bhE_Y)

Links 1 and 2 explain how dpd are using electric vehicles as new delivery solutions with zero emissions.

You will hear more from dpd later.

<https://vimeo.com/389270648/38fb0f2f47>

<https://vimeo.com/392466902/faa18def9c>

## **ACTIVITY 2**

Work in small groups and look at different transport means around the West Midlands (Tram, train, bus). Do your research and find out how long it would take you to travel from A to B on the each mode of transport (for example Walsall to Wolverhampton or Walsall to Birmingham)

Compare each one to a car journey and compare the travelling time.



Looks at the cost for each one and work out which is the best value for money, the fastest and the best way to travel to your chosen destination.

Which mode of transport would you chose and why?