

# دوسية اللغة الإنجليزية الفروع المهنية

## Action Pack 12

### Artificial Streams 2020

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Unit Four : Success Stories	الوحدة الرابعة : قصص نجاح
The importance of Islamic achievements	اهمية الانجازات الاسلامية
Masdar City – A positive Step	مدينة مصدر خطوة ايجابية
A founding father of farming	مؤسس علم الزراعة
Unit Nine : The world of business	الوحدة التاسعة : عالم الاعمال
Doing Business in China	القيام بالاعمال في الصين
Our country's imports and exports	صادرات و واردات بلدنا
How to make a Sales Pitch	كيف تقوم بعملية تسويق سلعة
Unit Ten : Career Choices	الوحدة العاشرة : خيارات المهن
My job as an interpreter	عملي كمتترجمة فورية
Stepping into the world of business	الدخول الى عالم الاعمال

متوفرة في مكتبة أحمد أخوان بفروعها

الفرع الأول : مقابل سوبر ماركت أبو جمال – هاتف 0796105253 – محمود

الفرع الثاني : مقابل حلويات القصر الشرقي – هاتف 0796500319 - أحمد

	word	English	Arabic
1	arithmetic	the branch of mathematics concerned with numerical calculations the study of numbers	الحساب
2	algebra	system where letters and symbols are used to represent numbers	الجبر
3	geometry	the branch of mathematics concerned with the properties	الهندسة
4	mathematician	a person who studies Mathematics	عالم رياضيات
5	philosopher	someone who studies philosophy	فيلسوف
6	physician	someone qualified to practise medicine	طبيب
7	polymath	someone who has a lot of knowledge / expert in many subjects	خبير / مثقف موسوعة
8	founder	someone who starts something new	مؤسس
9	scales	instrument to measure weight	ميزان
10	laboratory	room for scientific experiments	مختبر
11	talent	special ability	موهوب
12	musical harmony	a pleasant sound in music	عزف موسيقي
13	composition	a piece of music that someone has written	مقطوعة موسيقية
14	revolutionised	to completely change the way	أحدث ثورة
15	inheritance	money that you get from someone after they die / what people leave after death	ميراث / تركة
16	ground-breaking	new / innovative	مبتكر / مذهل

### Jabir ibn Hayyan : (born 722 CE, died 815 CE)

The Arab world has **many**<sup>1</sup> famous chemists in **its**<sup>2</sup> history, but the person **who**<sup>3</sup> is known as the founder of chemistry is probably Jabir ibn Hayyan. **He**<sup>4</sup> is most well known for the beginning of the production of sulphuric acid. **He**<sup>5</sup> also built a set of scales **which**<sup>6</sup> changed the way in **which**<sup>7</sup> chemists weighed items in a laboratory: **his**<sup>8</sup> scales could weigh items over 6,000 times smaller than a kilogram.

جابر ابن حيان : (ولد عام 722 م، مات 815 م)  
العالم العربي فيه العديد من الكيميائيين المشهورين في تاريخه، لكن على الأرجح فإن الشخص المعروف بأنه مؤسس الكيمياء هو جابر ابن حيان. الذي اشتهر بداية في إنتاج حامض الكبريتيك. كما بنى أيضاً مجموعة من الموازين التي غيرت الطريقة التي يقوم الكيميائيون من خلالها بوزن المواد في المختبر: ميزانه يمكن أن يزن المواد أصغر ب 6,000 مرة من الكيلوغرام.

#### 1. Ibn Hayyan has many great achievements. Write down two of these achievements.

ابن حيان لديه العديد من الإنجازات المشهورة. اكتب اثنين من هذه الإنجازات.

.....

#### 2. What is the main advantage of his scales?

ما هي الميزة الرئيسية للموازين التي بناها؟

.....

#### 3. Quote the sentence which shows that Ibn Hayyan was the first who invented sulphuric acid.

اقتبس الجملة التي تظهر بأن ابن حيان كان أول من اخترع حمض الكبريتيك.

.....

**Ali ibn Nafi ' (Ziryab): (born 789 CE, died 857 CE)**  
 Ali ibn Nafi ' is also known as 'Ziryab' (or 'Blackbird', because of his<sup>9</sup> beautiful voice). He<sup>10</sup> was a gifted pupil of a famous musician from Baghdad, and it<sup>11</sup> was his<sup>12</sup> talent for music that led him<sup>13</sup> to Cordoba in the ninth century CE. He<sup>14</sup> was the guest of the Umayyad ruler there. He<sup>15</sup> is the person who<sup>16</sup> established the first music school in the world in Cordoba, Al-Andalus, teaching musical harmony and composition. He<sup>16</sup> revolutionised musical theory, and is also the person who introduced the oud to Europe.

علي ابن نافع ( زرياب ) : ( ولد عام 789 م ، مات عام 857 م )  
 علي ابن نافع المعروف كذلك بـ ' زرياب ' ( أو 'الشحورور' بسبب صوته الجميل). كان طالبا موهوبا لموسيقار مشهور من بغداد، ولقد قدته موهبته الموسيقية إلى قرطبة في القرن التاسع الميلادي. ولقد كان ضيف الخليفة الأموي هناك، ابن نافع هو الشخص الذي أسس مدرسة الموسيقى الأولى في العالم في قرطبة، الأندلس. لقد كان يُعلّم التأليف والعزف الموسيقي. ولقد أحدث ثورة في عالم الموسيقى، أيضاً ابن نافع هو الشخص الذي أدخل العود إلى أوروبا.

4. Why was Ali ibn Nafi' called Blackbird?

لماذا كان يسمى علي بن نافع بالشحورور؟

5. Write down three of his achievements ?

اذكر ثلاثة من انجازاته؟

**Fatima al-Fihri :** (born early 9<sup>th</sup> century, died 880 CE)  
 Fatima al-Fihri was the daughter of a wealthy businessman. She<sup>17</sup> used her<sup>18</sup> father's inheritance to build a learning centre in Fez, Morocco. This<sup>19</sup> learning centre became Morocco's top university, and it<sup>20</sup> is where<sup>21</sup> many<sup>22</sup> students from all over the world come to study. Moreover, it<sup>23</sup> was Fatima's sister, Mariam, who<sup>24</sup> supervised the building of the Andalus Mosque, which<sup>25</sup> was not far from the learning centre.

فاطمة الفهري : ( ولدت في أوائل القرن التاسع، ماتت 880 م )  
 فاطمة الفهري كان بنت رجل أعمال غني. استعملت ميراث أبيها لبناء مركز للتعليم في فاس، المغرب. أصبح مركز التعلّم هذا جامعة المغرب الأولى، حيث يتوافد اليه العديد من الطلاب من جميع أنحاء العالم للدراسة. علاوة على ذلك، لقد كانت أخت فاطمة، مريم، هي التي أشرفت على بناء مسجد الأندلس، الذي لم يكن بعيداً عن مركز التعلّم.

6. How did Fatima use her father's inheritance ?

كيف استخدمت فاطمة ميراث والدها؟

7. Quote the sentence which shows that students from all over the world came to study at the centre.  
 اقتبس الجملة التي تظهر بأن الطلاب من كل انحاء العالم كانوا يأتون للمركز من أجل الدراسة.

**Al-Kindi (born around : 801 CE, died 873 CE)**  
 Al-Kindi was a physician, philosopher, mathematician, chemist, musician and astronomer – a true polymath. He<sup>26</sup> made ground-breaking discoveries in many of these<sup>27</sup> fields, but it<sup>28</sup> is probably his<sup>29</sup> work in arithmetic and geometry that has made him<sup>30</sup> most famous.

الكندي (ولد تقريبا عام 801 م ، مات 873 م )  
 كان الكندي طبيبا وفيلسوفاً وعالم رياضيات وصيدلي وموسيقار وفلكي – لقد كان مثقفاً حقيقياً. لقد قام باكتشافات رائدة في العديد من هذه الحقول والميادين، لكن من المحتمل أن أعماله في الحساب والهندسة هي التي جعلته أكثر شهرة.

8. Al-Kindi was a true polymath. Write down three of his areas of knowledge.

الكندي كان موسوعة. اكتب ثلاثة من مجالات معرفته.

9. Al-Kindi was famous mainly in two specific areas. Write them down.

الكندي كان مشهوراً في مجالين بشكل خاص. اكتبهما.

### Critical Thinking

Do you think that it was easier or more difficult in those days to reach such high levels of achievement in comparison with the present day? Give two / three reasons for your opinion.

هل تعتقد أنه كان من الصعب أو أنه كان أكثر سهولة في تلك الايام الوصول الى هذه المستويات العالية من المعرفة. اعط سببين أو ثلاثة اسباب لرايك.

الضمائر العائدة في النص

Word	Refers to	Word	Refers to		
<b>many</b> <sup>1</sup>	famous chemists	<b>it</b> <sup>11</sup>	his talent for music	<b>where</b> <sup>21</sup>	University / learning centre
<b>its</b> <sup>2</sup>	The Arab world	<b>his</b> <sup>12</sup>	Ali ibn Nafi'	<b>many</b> <sup>22</sup>	students
<b>who</b> <sup>3</sup>	the person	<b>him</b> <sup>13</sup>	Ali ibn Nafi'	<b>it</b> <sup>23</sup>	supervising the building
<b>He</b> <sup>4</sup>	Jabir ibn Hayyan	<b>He</b> <sup>14</sup>	Ali ibn Nafi'	<b>who</b> <sup>24</sup>	Mariam
<b>He</b> <sup>5</sup>	Jabir ibn Hayyan	<b>He</b> <sup>15</sup>	Ali ibn Nafi'	<b>which</b> <sup>25</sup>	the Andalus Mosque
<b>which</b> <sup>6</sup>	a set of scales	<b>who</b> <sup>16</sup>	the person	<b>He</b> <sup>26</sup>	<i>Al-Kindi</i>
<b>which</b> <sup>7</sup>	chemists	<b>She</b> <sup>17</sup>	<i>Fatima al-Fihri</i>	<b>these</b> <sup>27</sup>	fields
<b>his</b> <sup>8</sup>	Jabir ibn Hayyan	<b>her</b> <sup>18</sup>	<i>Fatima al-Fihri</i>	<b>it</b> <sup>28</sup>	being famous
<b>his</b> <sup>9</sup>	Ali ibn Nafi'	<b>This</b> <sup>19</sup>	learning centre	<b>his</b> <sup>29</sup>	<i>Al-Kindi</i>
<b>He</b> <sup>10</sup>	Ali ibn Nafi'	<b>it</b> <sup>20</sup>	university / learning centre	<b>him</b> <sup>30</sup>	<i>Al-Kindi</i>

**Student Book ( P.29 / Ex. 10 )**

write a summary paragraph of 80 words about someone from the past who made an important achievement. Write what it is that made them famous.

اكتب فقرة من حوالي 80 كلمة حول شخص من الماضي و الذي كانت له انجازات مهمة . اكتب ما الذي جعله مشهورا.

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**S.B ( P.30 / EX. 1-2-3-4 )**

	Word	Meaning
1	coffee	قهوة
2	chess	شطرنج
3	flying	طيران
4	clock	ساعة
5	windmills	طاحونة
6	algebra	علم الجبر
7	soap	صابونة
8	fountain pen	قلم حبر
9	crystal glasses	نظارات زجاجية
10	inoculation	تلقيح
11	cheques	شيك
12	carpets	سجاد

## المفردات المهمة في النص

	word	English	Arabic
1	Megaprojects	a very large project , expensive باهض , كبير جدا	مشروع ضخم
2	vary	to differ يختلف	يختلف
3	outweigh	to be more important شيء اهمية اكثر من something يكون	يفوق
4	zero-waste	Producing no waste لا تنتج / having parts اعادة استخدامها يمكن be reused اشياء التي اجزاء	صفر نفايات
5	sustainability	able to continue forever للأبد الاستمرار قادر على	الاستمرارية
6	artificially-created	not real / not made of من غير حقيقي / مصنوعا ليس natural اشياء طبيعية	صناعي
7	grid	a system of wires الاسلاك من نظام	شبكة
8	desalination	removing salt from water ماء البحر من ازالة الملح	تحلية المياه
9	criticise	to judge يحكم / to evaluate يقيم / analyse يحلل	ينتقد
10	carbon-neutral	not affecting the total amount of من لا يؤثر على الكمية الكلية carbon dioxide في atmosphere الغلاف الجوي	محايد للكربون

Megaprojects are extremely large investment projects, **which**<sup>1</sup> are designed to encourage economic growth and bring new benefits to cities. Although megaprojects vary in terms of size and cost, **they**<sup>2</sup> are all, by definition, expensive, public projects that attract a high level of interest and media coverage. Projects range from motorways, airports, stations, tunnels, bridges, etc. to entire city complexes.

المشاريع العملاقة عبارة عن مشاريع ذات استثمار كبير جداً ، التي تُصمَّم لتشجيع النمو الاقتصادي وتجلب العديد من المنافع الجديدة إلى المُدن. بالرغم من أن المشاريع العملاقة تتفاوت من ناحية الحجم و التكلفة، فجميعها من حيث المفهوم ، غالية الثمن، مشاريع عامة تجلب مستوى عالي من الاهتمام و التغطية الإعلامية. تتراوح المشاريع من الطرق السريعة، المطارات، المحطات، الأنفاق، الجسور، الخ. إلى كل المجمعات السكنية للمدينة.

1. There are two reasons for megaprojects. Write them down. اذكرهما . هناك سببين للمشاريع الكبيرة .

2. There are many examples of megaprojects. Mention three. اذكر ثلاثة امثلة على المشاريع العملاقة .

The concept of a megaproject is always based on the benefits **it**<sup>3</sup> brings to a community. However, **many**<sup>4</sup> megaprojects have been criticised because of **their**<sup>5</sup> negative effects on a community or the environment. **This**<sup>6</sup> essay will look at **these**<sup>7</sup> issues with regard to Masdar City, a megaproject in Abu Dhabi.

إن مفهوم المشاريع العملاقة دائماً مستند على المنافع التي تجلبها للمجتمع. على أية حال، تعرضت الكثير من المشاريع العملاقة للنقد بسبب تأثيراتها السلبية على المجتمع أو البيئة. ستبحث هذه المقالة في هذه القضايا فيما يتعلق بمدينة المصدر في أبو ظبي.

3. Why have megaprojects been criticised ?

لماذا تعرضت المشاريع الكبيرة للنقد؟

Masdar City, **which**<sup>8</sup> began **its**<sup>9</sup> development in 2006 CE, will be the world's first carbon-neutral, zero-waste artificially-created city. Covering an area of six square kilometres, when **it**<sup>10</sup> is completed in 2025 CE, **it**<sup>11</sup> is expected to house more than 40,000 residents, 50,000 commuters, and 1,500 businesses involved in mainly environmentally-friendly products.

مدينة المصدر، التي بدأ تطويرها في 2006 م ، سيتكون المدينة المحايدة للكربون الأولى في العالم، المدينة تستخدم صفر النفايات بشكل اصطناعي. تغطي المنطقة مساحة ستة كيلومترات مربعة، عندما يكتمل في عام 2025 م، من المتوقع أن يسكنها أكثر من 40,000 نسمة، 50,000 مسافر، و1,500 عمل تجاري التي تستخدم منتجات ملائمة للبيئة بشكل رئيسي.

4. Write down three advantages of Masdar city.

اكتب ثلاث منافع لمدينة المصدر.

The city will run entirely on renewable energy sources. **It**<sup>12</sup> is built on an advanced energy grid **which**<sup>13</sup> monitors exactly how much electricity is being used by every outlet in the complex. Furthermore, in order to reduce **its**<sup>14</sup> carbon footprint, Masdar City will be a car-free zone, designed to be pedestrian and cycle-friendly. Electric, driverless cars will operate as public transport vehicles, and the city will be connected to other locations by a network of roads and railways.

سيتم تشغيل وإدارة المدينة بشكل كامل بالاعتماد على مصادر الطاقة المتجددة . فهي مبنية على شبكة طاقة متقدمة التي تراقب بالضبط كم من الكهرباء يتم استعمالها من قبل كل مخرج في المجمع. علاوة على ذلك، لكي تُخفّض من أثر الكربون، المدينة ستكوّن منطقة خالية من السيارات ، صمّمت لكي تكوّن منطقة مناسبة للمشاة و لإعادة التدوير. ، السيارات الكهربائية الآلية ذاتية القيادة سوف تستخدم كوسائط للنقل العام ، والمدينة ستكوّن مُرتبطة مع المواقع الأخرى من خلال شبكة الطرق والسكك الحديدية.

5. Quote the sentence which shows the benefit of the advanced energy grid.

اقتبس الجملة التي تظهر منفعة / فائدة شبكة الطاقة المتقدمة.

6. The city follows many steps to reduce its carbon footprint. Write down three of these steps.

المدينة ستتبع عدة خطوات للتقليل من اثار الكربون. اكتب ثلاثة من هذه الخطوات.

Energy will be provided by solar power and wind farms, and there are also plans to build the world's largest hydrogen plant. A desalination plant will be used to provide the city's water, with 80% of water used being recycled. Biological waste will be used as an energy source too, and industrial waste will be recycled.

سيتم تزويد المدينة بالطاقة بواسطة الطاقة الشمسية و طاقة الرياح ، وهناك أيضاً خطط لبناء أكبر مصنع هيدروجين في العالم. وحدة تكرير وتحلية مياه البحر ستستخدم لتزويد المدينة بالماء ، مع احتمالية إعادة تدوير واستخدام 80 % من الماء المستعمل . سوف يتم استخدام النفايات الحيوية كمصدر للطاقة أيضاً، سيتم كذلك تدوير النفايات الصناعية.

7. Energy will be provided by many sources. Write down three of these sources.

المدينة سوف يتم تزويدها بالطاقة من خلال العديد من مصادر الطاقة. اذكر ثلاثة من هذه المصادر.

8. Quote the sentence which shows that Biological waste will be used as an energy source.

اقتبس الجملة التي تظهر أن النفايات الحيوية سوف تستخدم كمصدر للطاقة في المدينة.

The current residents of Masdar City are all students at the Masdar Institute of Science and Technology, a university whose students are fully committed to finding solutions to the world's energy problems. While the project has the support of many global, environmental and conservation organisations, there is some criticism of **it**<sup>15</sup>. **It**<sup>16</sup> is felt that, instead of building an artificial sustainable city, sustainability should be made a priority of existing cities.

إن جميع السكان الحاليين لمدينة المصدر جميعهم من الطلاب في معهد المصدر للعلوم والتكنولوجيا ، وهي جامعة يلتزم كل طلابها بإيجاد الحلول لمشاكل الطاقة في العالم. بينما يحظى المشروع بدعم العديد من المنظمات والمؤسسات العالمية لحماية البيئة ، هناك بعض النقد لهذه المؤسسة. فبدلاً من بناء مدينة صناعية ، فإن أولوية الاستمرارية يجب أن تعطى للمدن الموجودة.

9. The project of Masdar city has been criticised for one reason. Write it down.

مشروع مدينة مصدر تم نقده لسبب واحد. اذكر هذا السبب.

10. What is the goal of the students at the university ?

ما هو هدف طلاب جامعة مصدر للعلوم والتكنولوجيا؟

In conclusion, the benefits of Masdar City for the community and the environment greatly outweigh any disadvantages. If the aims of the developers are realised, Masdar City will be a blueprint for future urban planning that will inspire similar megaprojects in other countries.

نتيجة لذلك، فإن منافع مدينة مصدر لكل من المجتمع والبيئة تفوق أي مساوئ . و إذا تم بلوغ الأهداف التي يسعى لها المطورون ، فإن المدينة ستكوّن بصمة واضحة في مستقبل التخطيط الحضري الأمر الذي سوف يُلهِم العديد من المشاريع الكبيرة في البلدان الأخرى.

11. How will the city be a blue print for the future of urban planning?

كيف ستكون المدينة بصمة واضحة في مستقبل تطوير المدن؟

Word	Refers to	Word	Refers to
which <sup>1</sup>	projects / megaprojects	its <sup>9</sup>	Masdar City
they <sup>2</sup>	megaprojects	it <sup>10</sup>	Masdar City
it <sup>3</sup>	megaproject	it <sup>11</sup>	Masdar City
many <sup>4</sup>	megaprojects	It <sup>12</sup>	The city
their <sup>5</sup>	megaprojects	which <sup>13</sup>	energy grid
This <sup>6</sup>	essay	its <sup>14</sup>	The city
these <sup>7</sup>	issues	it <sup>15</sup>	criticism
which <sup>8</sup>	Masdar City	It <sup>16</sup>	the project

**Student Book ( P.32 / Ex.1 )**

- 1 What do you understand, after looking at the photographs, about megaprojects?
- 2 In your opinion, why do they exist?
- 3 What are the advantages and disadvantages of megaprojects to people and the environment?

**Suggested answers**

- 1 Megaprojects are huge investment projects that cost a lot of money. Examples include developments such as airports, bridges, stations, entire city complexes, etc.
- 2 They exist to bring new economic growth and benefits to cities.
- 3 Disadvantages are that they are all brand new and some people think it would be better to spend the money on regenerating old towns, etc.  
However, the advantages include installing the latest technology that helps cities to become environmentally friendly.

**Student Book ( P.33 / Ex.3 )**

3 Read the essay on page 32 again and answer the questions.

اجب عن الاسئلة التالية.

1 What examples of megaprojects are provided in the essay?

ما هي الامثلة على المشاريع العملاقة الموجودة في النص؟

2 What are the advantages of the creation of Masdar City? What are the disadvantages?

ما هي حسنات / مزايا مدينة مصدر؟ ما هي المساوئ / السلبيات؟

3 Do you think that Masdar City is a beneficial project or not? Give your reasons.

هل تعتقد بأن مشروع مدينة مصدر مشروع نافع أم لا؟ اعط اسبابا لجوابك؟

**Answers**

- 1 Examples of projects include motorways, airports, stations, tunnels, bridges and entire city complexes.
- 2 The advantages include the fact that it will be the world's first carbon-neutral, zero-waste city. It will also be a car-free zone, although there will be excellent public transport. The disadvantage is that existing cities are nowhere near as environmentally clean, and many people think the money should have been spent on cleaning up existing places and making them more sustainable.

3 ..... تفكير ناقد.....  
.....

6 Do you think that a similar project to Masdar City would be successful in Jordan? What advantages and disadvantages can you think of?

هل تعتقد أن مشروع كمدينة مصدر قد يكون نافعا في الاردن؟ ما هي الحسنات و المساوئ التي قد تفكر بها .

.....  
.....  
.....

8 Write a summary of the article about Masdar City on page 32. Remember to be concise and write between 100 and 150 words.

اكتب ملخص لمشروع مدينة مصدر .

.....  
.....  
.....  
.....

## معاني المفردات المهمة في النص

	word	English	Arabic
1	botany	the study of plants	علم النبات
2	irrigate	supply land with water	يسقي
3	fertile land	agriculturally productive	ارض خصبة
4	legacy	What someone leaves after death	ميراث

Ibn Bassal was a writer, a scientist and an engineer who lived in Al-Andalus in the eleventh century CE. He worked in the court of Al-Ma'mun, (1) **who was the king of Toledo**. His great passions were botany, (2) **which is the study of plants**, and agriculture. Although he was a great scholar, he was also a practical man and all of his writing came from his own "hands-on" experience of working the land.

ابن بصّال كانَ كاتباً , عالماً ومهندساً عاش في الأندلس في القرن الحادي عشر للميلاد . و لقد عملَ في بلاط المأمون ، (1) الذي كانَ ملكَ طليطله . لقد كان الشغف الأكبر لابن بصّال هو علم النبات، (2) وهو العلم الذي يعني بدراسة النباتات، و الزراعة. بالرغم من أنه كانَ باحثاً عظيماً، فقد كانَ أيضاً رجلاً عملياً وكلّ كتاباته جاءت من تجربته "الشخصية" الخاصة في العمل بالأرض.

1. Write three examples shows that Ibn Bassal was a polymath. . اعط ثلاث امثلة تدل ان ابن بصّال مثقف .  
.....  
من اين حصل ابن بصّال على معرفته؟
2. From where did he get his knowledge?  
.....

One of the many things which Ibn Bassal achieved was A *Book of Agriculture*. The book consisted of sixteen chapters which explain how best to grow trees, fruit and vegetables, as well as herbs and sweet-smelling flowers; perhaps the most famous chapter of all was the one (3) **that described how to treat different types of soil**. Ibn Bassal also worked out how to irrigate the land by finding underground water and digging wells. He designed water pumps and irrigation systems. All of these things were passed on through his writing.

احد الأشياء العديدة التي أنجزها ابن بصّال كانَ كتاب الزراعة. الكتاب تكون من ستة عشر فصلاً التي تبوّض ما هي أفضل طريقة لزراعة الأشجار والفاكهة والخضار، بالإضافة إلى الأعشاب والزهور العطرية؛ ربما الفصل الأكثر شهرة كانَ ذلك (3) الذي يصف كيفية معالجة الأنواع المختلفة من التربة. كما عرف ابن بصّال أيضاً كيف يسقي الأرض بإيجاد المياه الجوفية وحفر الآبار. لقد صمّم أنظمة الريّ ومضخات المياه. كل هذه الأشياء نُقلت خلال كتاباته.

3. Many plants mentioned here. Write down three. العديد من النباتات ذُكرت هنا. اذكر ثلاثة منها.  
.....
4. How did Ibn Bassal irrigate the land ? كيف سقى ابن بصّال الأرض ؟  
.....
5. What did he design? ماذا صمّم ابن بصّال؟  
.....

The influence of Ibn Bassal's book was enormous. As farmers down the generations followed his instructions and advice, the land became wonderfully fertile and produced more than enough food for the fast-growing population. The irrigation systems (4) **that he and his followers put in place** are still in evidence in Spain. Although his name is not widely known, Ibn Bassal's legacy to the world has been great.

لقد كان تأثير كتاب ابن بصّال هائلاً. لأن المزارعين عبر الأجيال تبعوا تعاليمه ونصائحه، كما أن الأرض أصبحت خصبة بشكل رائع وأنتجت طعاماً أكثر من اللازم لعدد السكان المتزايد بسرعة. أنظمة الريّ (4) التي قام هو و أتباعه بتطبيقها ما زالت موجودة حتى اليوم في إسبانيا. بالرغم من أن اسمه ليس معروفاً على نحو واسع، إلا أن تراث ابن بصّال العالم كانَ عظيماً.

6. How was the influence of Ibn Bassal enormous? كيف كان تأثيره هائلاً / كبيراً ؟  
.....



### Activity Book ( P.22 / Ex.9 )

9 Read the text again and answer the questions.

1 Name two of Ibn Bassal's achievements.

أذكر اثنين من إنجازات ابن بصّال.

2 Find a verb in the second paragraph that means 'supply land with water'.

جد فعلا في الفقرة الثانية معناه " يزود الأرض بالماء " .

3 Guess the meaning of 'fertile land' in the third paragraph. Which part of the text illustrates its meaning?

خمن / احزر معنى كلمة ..... في الفقرة الثالثة . اي جزء من النص يوضح المعنى؟

4 Guess the meaning of 'legacy' in the third paragraph. What does the author suggest is Ibn Bassal's legacy to the world?

خمن / احزر معنى كلمة ..... في الفقرة الثالثة . ماذا يقترح الكاتب حول ارث / ميراث ابن بصّال للعالم؟

5 Which paragraph suggests that Ibn Bassal was a polymath? Give examples of his areas of knowledge.

اي فقرة تقترح بأن ابن بصّال كان مثقفا / موسوعة ؟ اعط امثلة على مجالات معرفته.

6 Why do you think the area around Toledo had a 'fast-growing population'?

لماذا تعتقد أن المنطقة حول طليطلة كانت ذات نمو سكاني سريع ( اعط سببين )؟

### Answers :

1 writing *A Book of Agriculture*; designing water pumps and irrigation systems

2 irrigate

3 agriculturally productive; 'produced more than enough food ...' (lines 28–29)

4 'Legacy' means what someone leaves to the world after their death. Ibn Bassal's legacy is his agricultural instructions and advice.

5 the first paragraph: writing, science, engineering, botany, agriculture

6 Suggested answer:

I think that the area around Toledo had a fast-growing population for two reasons.

Firstly, I think that many people would want to live around Toledo, and Al-Andalus in general, at that time because Al-Andalus was a very prosperous place.

Secondly, because the area was producing a lot of food as a result of Ibn Bassal's irrigation systems, people would be healthier and more able to provide for more children than they could before.

### Activity Book ( P. 23 / Ex. 11 / 12 )

Name الاسم	Ibn Bassal
Date التاريخ	lived in the eleventh century CE
Location الموقع	Al-Andalus
Occupation and Interests المجال و الاهتمامات	writer, scientist and engineer / interested in botany and agriculture
Achievements الانجازات	writing <i>A Book of Agriculture</i> ; designing water pumps and irrigation systems
Legacy الميراث	agricultural instructions and advice

12 Now write three short paragraphs (40–60 words each) summarising the text about Ibn Bassal. Use the prompts in exercise 11 as a guide. اكتب ثلاث فقرات قصيرة تلخص فيها النص حول ابن بصّال. استخدم معلومات الجدول.

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نمو اقتصادي	النقل العام	اثر سلبية	اثر الكربون	نفايات حيوية	تخطيط حضري
economic growth	public transport	negative effects	carbon footprint	biological waste	urban planning

## 5 Complete the sentences with the correct collocations from exercise 4.

اكمل الفراغ بالمتلازمات المناسبة من التمرين الرابع.

1. When people talk about ..... , they can mean either an improvement in the average standard of living, or an increase in the value of a country's products .
2. Pollution has some serious ..... on the environment, such as the death of wildlife and plant life .
3. We can all work hard to reduce our ..... by ..... a more environmentally-friendly lifestyle .
4. If we take ..... more often, there will be fewer cars on the roads, which will result in cleaner air .
5. Hospitals need to ..... of a lot of ..... , and it should be carefully managed because it can be dangerous .
6. The need for more ..... is evident when we consider modern day problems like traffic .

**Answers :** 1 economic growth 2 negative effects 3 carbon footprint 4 public transport 5 biological waste 6 urban planning

## Activity Book ( P.20 / Ex. 1 -2 – 3 – 4 )

## Vocabulary

1 Complete the sentences with the words in the box. One word is not needed. The first one is done for you.

فيلسوف	حساب	متقّف	كيميائي / صيدلي	هندسة	عالم رياضيات	طبيب
philosopher	arithmetic	polymath	chemist	geometry	mathematician	physician

1. My father teaches Maths . He's a **mathematician** .
2. You must not take medicine without consulting a ..... .
3. We learn about shapes, lines and angles when we study ..... .
4. Mr Shahin is a true ..... , working in all kinds of creative and scientific fields .
5. Ramzi is very good with numbers and calculations . He is always high in ..... .
6. A ..... is someone who thinks and writes about the meaning of life .

**Answers :** 1 mathematician 2 physician 3 geometry 4 polymath 5 arithmetic 6 philosopher

2 Match the words with the correct definitions. One definition is not needed. The first one is done for you.

Word	Definition
1. talent _g_.	a. an expert in many subjects
2. founder ____	b. a room for scientific experiments
3. scales ____	c. the person who starts something new, such as an organisation
4. polymath ____	d. an instrument to measure weight
5. arithmetic ____	e. an engineer
6. laboratory ____	f. the study of numbers
	g. special ability

Answers : 1 g 2 c 3 d 4 a 5 f 6 b

**Activity Book ( P.23 / Ex.10 )**

10 Complete the sentences with words from the box. One word is not needed. تمرين على الكلمات المركبة

نافع	مزارع	آثار	خالى	مناسب	محايد	مشاة	طاقة	متجددة	نفايات
benefit	farms	footprint	free	friendly	neutral	pedestrian	power	renewable	waste

- 1 In hot countries, solar ..... is an important source of energy .  
 2 'Green' projects are environmentally .....  
 3 Wind ..... are an example of ..... energy.  
 4 If a city recycles everything and doesn't throw anything away, it is zero- .....  
 5 We burn carbon whenever we use oil, coal or gas. This is known as our carbon .....  
 6 If we replace as much carbon as we burn, we are carbon- .....  
 7 A place where no cars are allowed is a car- ..... zone, and it is ..... friendly.

Answers : 1 power 2 friendly 3 farms / renewable 4 waste 5 footprint 6 neutral 7 free / pedestrian

## Unit Four

A. Relative Clauses (الجمل الموصولة)	B. Cleft Sentences (الجمل المنقسمة (الجزئية))
<p>Who = تستخدم مع الاسم العاقل The man .....lives next door is nice. ( who , which , where , that )</p>	<p>لهذه القاعدة ثلاث بدايات و هي: البداية الاولى : وضع it / it is / it was في البداية . It is ..... It was .....</p>
<p>Which = تستخدم مع الاسم غير العاقل The book .....you bought me was good. ( which , where , when , who )</p>	<p>1. Ziriyab introduced the oud to Europe. It was <u>Ziriyab who / that introduced the oud to Europe.</u> في هذا النمط نعتبر الاسم الموجود قبل الفعل هو الاسم المشدد. ننزل الاسم المشدد / ضمير وصل مناسب او that / نكمل الجملة البداية الثانية : وضع احد الكلمات التالية والتي تدل على المشدد .</p>
<p>Where = مع اسم المكان The village ..... I was born , was peaceful. ( which , where , when , who )</p>	<p>The person ..... The country..... The place .....</p>
<p>When = مع اسم الزمان The year .....we met was stormy. ( when , where , which , who )</p>	<p>The year..... The time/The period..... The century.....</p>
<p>Whose = تستخدم بين اسمين للدلالة على الملكية The woman .....daughter in my class, is nice ( who , where , when , whose )</p>	<p>The event..... The thing..... Queen Rania opened the gallery in 2012CE. The person <u>who / that opened the gallery in 2012 CE was Queen Rania.</u></p>
<p>تذكر : الضمير that يحل مكان اي ضمير بشرط عدم وجود فاصلة قبل الفراغ . The ring , .....you bought is too cheap. ( who , which , where , that ) مع اسماء المكان التي يتبعها فاعل نستخدم where مع اسماء المكان التي يتبعها فعل نستخدم which The hospital .....treats the poor is global. ( who , which , where , when ) The hospital .....my dad treats the poor . ( who , which , where , when )</p>	<p>The year <u>when / that Queen Rania opened the gallery was 2012 CE.</u> الخطوات : 1. الاسم المشدد حسب معنى البداية الوزارية . 2. ضع ضمير وصل مناسب او that لكل . 3. نزل كل الجملة عدا الاسم المشدد . 4. ضع is / was 5. ضع المشدد في نهاية الجملة .</p>
<p>London is a huge city. It is the capital of the UK. London, <u>which is the capital of the UK, is a huge city.</u> المعطيات : وجود جملتين تفصلهما فقط نقطة. الجملة الاولى تبدأ بإسم و الثانية تبدأ بضمير يدل على الاسم خطوات الحل : ضع ضمير وصل مناسب فقط استخدم ( who , which ) أنزل الجملة الثانية ضع فاصلة انزل الجملة الاولى</p>	<p>البداية الثالثة : وضع كلمة What في بداية الجملة . I would like to visit Petra next year. What ..... I would like to study medicine at college in 2030. What ..... خطوات الحل : (1) نزل الجملة I would like to كما هي (2) ضع الفعل المساعد do (3) اكمل الجملة (4) ضع is (5) ضع الفعل والاسم الموجودين في الاصلية بعد to في النهاية.</p>
	<p>البداية الرابعة: وضع المشدد في بداية الجملة Al-Kindi made a set of scales for chemists. Al-Kindi was the person..... الحل هنا يكون خطوة واحدة وهي فقط وضع الضمير الموصول المناسب ثم نكمل الجملة كما هي.</p>

Student Book ( P. 29 / Ex. 6 – 7 – 8 )

6 We want to emphasise the part of the sentence which is in bold in sentences 1–3. Match each one to an appropriate cleft sentence a–c. المطلوب : توصيل الجمل مع الاجابة المناسبة.

1 The Great Mosque in Cordoba was built in 784 CE by <b>Abd al-Rahman I</b> .	a The year when the Great Mosque in Cordoba was built was 784 CE.
2 <b>The Great Mosque in Cordoba</b> was built in 784 CE by Abd al-Rahman I.	b Abd al-Rahman I was the person who built the Great Mosque in Cordoba in 784 CE.
3 The Great Mosque in Cordoba was built in <b>784 CE</b> by Abd al-Rahman I.	c The mosque that was built by Abd al-Rahman I in 784 CE was the Great Mosque in Cordoba.
<b>Answers : 1. b 2. c 3. a</b>	

7 Write this sentence in three different ways, emphasising the parts underlined in each case. المطلوب : كتابة الجملة بثلاث طرق مختلفة بحيث يكون التشديد في كل مرة على الاسم الذي تحته خط.

Al-Jazari invented the mechanical clock in the twelfth century.

1. It was .....
2. The person .....
3. It was .....
4. The thing .....
5. It was .....
6. The century / The period .....

**Answers :**

- 1 The person who invented the mechanical clock in the twelfth century was Al-Jazari.
2. It was Al-Jazari who/that invented the mechanical clock in the twelfth century.
3. The thing that Al-Jazari invented in the twelfth century was the mechanical clock.
4. It was the mechanical clock that Al-Jazari invented in the twelfth century.
5. The period/time when Al-Jazari invented the mechanical clock was the twelfth century.
6. It was in the twelfth century that Al-Jazari invented the mechanical clock.

8 Rewrite these sentences, emphasising the part in bold, and using the structure as shown.

1 **Al-Kindi** contributed to the invention of the oud.

**The person who**.....

2 Jabir ibn Hayyan did his research in a laboratory **in Iraq**.

**The country where** .....

3 **Ali ibn Nafi** ' established the first music school in the world.

**It was**.....

4 **Jabir ibn Hayyan** also invented ink that can be read in the dark.

**It was** .....

5 Al-Kindi is especially famous for **his work in geometry**.

**It is** .....

**Answers :**

- 1 The person who contributed to the invention of the oud was Al-Kindi.
- 2 The country where Jabir ibn Hayyan did his research in a laboratory was Iraq.
- 3 It was Ali ibn Nafi' who established the first music school in the world.
- 4 It was Jabir ibn Hayyan who/that also invented ink that can be read in the dark.
- 5 It is for his work in geometry that Al-Kindi is especially famous.

**Student Book ( P.30 / Ex.4 )**

**4** Read the passage below and answer the questions.

**The Giralda**

The Giralda tower, which is one of the most important buildings in Seville, Spain, stands at just over 104 metres tall. The person who is believed to be responsible for the design of the tower, which was originally a minaret, is the mathematician and astronomer Jabir ibn Aflah. The architect of the tower was Ahmad Ben Baso, who began work in 1184 CE. He died before the tower was completed in 1198 CE. The design of the tower is believed to be based on the Koutoubia Mosque, which is in Marrakesh, Morocco, and the Hassan Tower in Rabat.

**1** Identify the defining and non-defining relative clauses in the text. حدّد جمل الوصل المعرّفة و غير المعرّفة .

**Defining relative clauses:**

who is believed to be responsible for the design of the tower

**Non-defining relative clauses:**

which is one of the most important buildings in Seville, Spain

which was originally a minaret

who began work in 1184 CE

which is in Marrakesh, Morocco

**2** What relative pronouns do we use for the things in the box? ما هو ضمير الوصل المناسب للحديث عن كل من:

**People / animals and things / places**

people – who, that; / animals and things – which, that; / places – where, which, that

**Student Book ( P.31 / Ex.5 )**

**5.** Complete the text with the correct word from the box. Sometimes, more than one answer is possible.

**who , which , where , that**

Qasr Bashir is an extremely well-preserved Roman castle (1)..... is situated in the Jordanian desert, and is about eighty kilometres south of Amman. The walls and huge corner towers of the castle, (2)..... was built at the beginning of the fourth century CE, are still standing.

It is thought that Qasr Bashir was built to protect the Roman border. Apart from the rooms in the castle, there are also about twenty-three stables (3)..... horses may have been kept.

People (4)..... love exploring historical Roman ruins will certainly find a visit to Qasr Bashir very rewarding. Once inside the building, one can imagine very vividly what it would have been like to live there during the times of the Roman Empire.

**Answers :** 1 which/that 2 which 3 where 4 who/that

**Activity Book ( P.20 / Ex.3)**

3 Make cleft sentences, stressing the information in **bold**. The first one is done for you.

**1 Queen Rania** opened the Children’s Museum of Jordan in 2007 CE.

It was Queen Rania who opened the Children’s Museum of Jordan in 2007 CE.

The person.....  
Queen Rania was the person.....  
The year.....  
The thing.....

**2** Petra was made a World Heritage Site **in 1985 CE**.

The year .....

**3** I stopped working **at 11 p.m.**

It was .....

**4** **My father** has influenced me most.

The person.....

**5** I like **Geography** most of all.

The subject.....

**6** The heat made the journey unpleasant.

It was .....

**Answers :**

- 1 Queen Rania who opened the Children's Museum of Jordan in 2007 CE
- 2 when/in which Petra was made a World Heritage Site was 1985 CE
- 3 11 p.m. when I stopped working
- 4 who/that has influenced me most is my father
- 5 that/which I like most of all is Geography
- 6 the heat that/which made the journey unpleasant

**Activity Book ( P.21 / Ex.4)**

**4 Match the beginnings with the correct endings and join them with a relative pronoun. Then, write the sentences out in full. The first one is done for you.**

1 A mathematician is someone ...	a are studied by mathematicians.
2 Geometry and arithmetic are subjects ...	b means 'doctor'.
3 'Physician' is an old-fashioned word ...	c works with numbers.
4 A chemist is a person ...	d astronomers study.
5 The stars and planets are things ...	e works in a laboratory.

**Answers :**

- 1 c: A mathematician is someone who works with numbers.
- 2 a: Geometry and arithmetic are subjects that/which are studied by mathematicians.
- 3 b: 'Physician' is an old-fashioned word that/which means 'doctor'.
- 4 e: A chemist is a person who/that works in a laboratory.
- 5 d: The stars and planets are things that/which astronomers study.

**Activity Book ( P.21 / Ex.5)**

**5 Complete the text about Ibn Sina, using the relative pronouns in the box. One pronoun is used twice. Add commas for the non-defining relative clauses.**

**that , when , which , who**

Ibn Sina (1)..... is also known as Avicenna was a polymath. Ibn Sina was influenced as a young man by the works of the philosopher Aristotle. He wrote on early Islamic philosophy (2)..... included many subjects, especially logic and ethics. He also wrote *Al Qanun fi -Tibb*, the book (3) .....became the most famous medical textbook ever. In the last ten or twelve years of his life, Ibn Sina started studying literary matters. His friends (4)..... were worried about his health advised him to relax. He refused and told them 'I prefer a short life with width to a narrow one with length.' It was the month of Ramadan (5)..... Ibn Sina died, in June 1037 CE.

**Answers :**

- 1 , who is also known as Avicenna, 2 , which included many subjects, 3 that
- 4 , who were worried about his health, 5 when

**Activity Book ( P.21 / Ex.6)**

**7 Complete the sentences with words formed from the words in brackets.**

- 1 The Middle East is famous for the..... of olive oil. (produce)
- 2 Ibn Sina wrote .....textbooks. (medicine)
- 3 Fatima al-Fihri was born in the .....century. (nine)
- 4 My father bought our house with an .....from his grandfather. (inherit)
- 5 Scholars have discovered an .....document from the twelfth century. (origin)
- 6 Do you think the wheel was the most .....important ever? (invent)
- 7 Al-Kindi made many important mathematical..... (discover)
- 8 Who was the most .....writer of the twentieth century? (influence)

**Answers :**

- 1 production 2 medical 3 ninth 4 inheritance 5 original 6 invention 7 discoveries 8 influential

الامتحان التدريبي على الوحدة الرابعة

<b>1</b>	رقم الفقرة
<p><b>Read the following text carefully and then answer the question that follows.</b>                  One of the many things which Ibn Bassal achieved was A Book of Agriculture. The book consisted of sixteen chapters which explain how best to grow trees, fruit and vegetables, as well as herbs and sweet-smelling flowers; perhaps the most famous chapter of all was the one that described how to treat different types of soil. Ibn Bassal also worked out how to irrigate the land by finding underground water and digging wells. He designed water pumps and irrigation systems. All of these things were passed on through his writing.  <b>Write down two things that Ibn Bassal designed.</b></p>	
بدائل الفقرة	
water pumps and irrigation systems	أ
herbs and sweet-smelling flowers	ب
finding underground water and digging wells	ج
which explain how best to grow trees	د
	مفتاح الحل

<b>2</b>	رقم الفقرة
<p><b>Read the following text carefully and then answer the question that follows.</b>                  Furthermore, in order to reduce its carbon footprint, Masdar City will be a car-free zone, designed to be pedestrian and cycle-friendly. Electric, driverless cars will operate as public transport vehicles, and the city will be connected to other locations by a network of roads and railways.  <b>The city will be connected to other locations in two ways. Write them down.</b></p>	
بدائل الفقرة	
in order to reduce its carbon footprint	أ
a network of roads and railways	ب
Masdar City will be a car-free zone	ج
driverless cars will operate as public transport vehicles	د
	مفتاح الحل

<b>3</b>	رقم الفقرة
<p><b>Choose the correct answers A , B , C or D.</b>                  His friends , ..... were worried about his health advised him to relax.</p>	
بدائل الفقرة	
who	أ
which	ب
where	ج
that	د
	مفتاح الحل