

# ESP LESSON PACKS – ACTUARIAL & DATA-DRIVEN TOPICS (B1 → B2)

**Audience:** English teachers (no finance background required)

**Student Profile:** Actuarial / Finance student (B1–B2)

**Lesson Length:** 60 minutes each

**Pedagogical Principle:** Treat every lesson as a *professional briefing*, not a language class.

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## LESSON PACK A – AI & BIG DATA IN INSURANCE

### 1. Lesson Objectives

By the end of the lesson, the student will be able to: - Explain how AI and big data are used in insurance - Compare traditional models and AI-based models (simply) - Express advantages and limitations clearly

**Teacher note:** You do NOT need AI expertise. Focus on *trends, risks, and explanations*.

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### 2. Warm-Up (5 minutes)

**Guiding Questions:** - Where do companies use AI today? - Is AI more about speed or accuracy? - Can data be useful but also risky?

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### 3. Input Material (10 minutes)

**Article (Primary):**

- Deloitte – *AI in Insurance: Opportunities and Risks*

<https://www2.deloitte.com/insights/us/en/industry/financial-services/artificial-intelligence-insurance.html>

**Alternative Article (Very accessible):**

- Society of Actuaries – *AI and the Actuary (Overview)*

<https://www.soa.org/resources/essays-monographs/2020/ai-and-the-actuary/>

**Short Video:**

- IBM – *What is Artificial Intelligence?* (3 min)

<https://www.ibm.com/topics/artificial-intelligence>

**Student Task:** Identify: 1. One use of AI 2. One benefit 3. One risk or limitation

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## 2. Warm-Up (5 minutes)

**Guiding Questions:** - Where do companies use AI today? - Is AI more about speed or accuracy? - Can data be useful but also risky?

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## 3. Input Material (10 minutes)

**Article Topic:** How AI is changing insurance pricing

**Source type:** Deloitte / PwC / Society of Actuaries (intro article)

**Student Task:** Identify: 1. One use of AI 2. One benefit 3. One risk or limitation

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## 4. Vocabulary Focus (10 minutes)

Term	Simple Definition	Example
Artificial intelligence	Computers that learn from data	AI models
Big data	Very large data sets	big data analysis
Predict	Estimate future results	predict losses
Algorithm	Set of rules for calculations	pricing algorithm
Bias	Unfair result from data	biased data
Accuracy	How correct a result is	improve accuracy
Model	Mathematical representation	risk model

**Practice:** Sentence completion + error correction

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## 5. Grammar Review (10 minutes)

**Focus:** Comparatives (more / less / better than)

Examples: - AI models are faster than traditional models. - Big data can be more accurate but less transparent.

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## 6. Speaking Task (20 minutes)

**Scenario:** Explain AI use in insurance to a manager

**Key Questions:** - What does AI do? - Why do companies use it? - What are the risks?

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# LESSON PACK B – CLIMATE RISK & REINSURANCE

## 1. Lesson Objectives

- Describe climate risk using data language
  - Explain why reinsurance is necessary
  - Use conditionals for risk scenarios
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## 2. Warm-Up (5 minutes)

**Questions:** - What climate events cause financial losses? - Are losses increasing?

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## 3. Input Material (10 minutes)

### Article (Primary):

- Swiss Re Institute – *Natural catastrophes and insured losses*  
<https://www.swissre.com/institute/research/sigma-research.html>

### Alternative Article:

- Munich Re – *NatCat losses explained*  
<https://www.munichre.com/en/risks/natural-disasters-losses.html>

### Short Video:

- Munich Re – *Why reinsurance matters* (3–4 min)  
<https://www.munichre.com/en/company/media-relations/media-center/videos.html>

**Student Task:** - One trend - One risk - One consequence

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## 2. Warm-Up (5 minutes)

**Questions:** - What climate events cause financial losses? - Are losses increasing?

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## 3. Input Material (10 minutes)

**Article Topic:** Rising insured losses from natural catastrophes

**Source type:** Swiss Re / Munich Re overview

**Student Task:** - One trend - One risk - One consequence

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#### 4. Vocabulary Focus (10 minutes)

Term	Simple Definition
Climate risk	Financial risk from climate events
Loss frequency	How often losses happen
Loss severity	Size of losses
Exposure	Amount at risk
Reinsurance	Insurance for insurers
Premium	Price of insurance

#### 5. Grammar Review (10 minutes)

**Focus:** First Conditional

Example: - If losses increase, premiums will rise.

#### 6. Speaking Task (20 minutes)

**Scenario:** Explain a premium increase to a client

## LESSON PACK C – DEMOGRAPHICS & PENSION SUSTAINABILITY

### 1. Lesson Objectives

- Explain aging population trends
- Describe pension risks clearly
- Use comparatives and trend language

### 2. Warm-Up (5 minutes)

**Questions:** - Are people living longer today? - Why does this matter for pensions?

### 3. Input Material (10 minutes)

**Article (Primary):**

- OECD – *Working Better with Ageing Populations* (Executive Summary)

<https://www.oecd.org/employment/ageingandemploymentpolicies.htm>

**Alternative Article:**

- World Bank – *Pension Systems and Aging*  
<https://www.worldbank.org/en/topic/pensions>

**Short Video:**

- OECD – *Population ageing explained* (short explainer)  
<https://www.oecd.org/els/family/population-ageing.htm>

**Student Task:** - One demographic trend - One financial risk

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**2. Warm-Up (5 minutes)**

**Questions:** - Are people living longer today? - Why does this matter for pensions?

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**3. Input Material (10 minutes)**

**Article Topic:** Aging populations and pension pressure  
**Source type:** OECD / World Bank summary

**Student Task:** - One demographic trend - One financial risk

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**4. Vocabulary Focus (10 minutes)**

Term	Simple Definition
Aging population	More older people
Life expectancy	Average years of life
Pension system	Retirement payment system
Sustainability	Ability to continue
Dependency ratio	Workers vs retirees

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**5. Grammar Review (10 minutes)**

**Focus:** Comparatives & Superlatives

Example: - Life expectancy is higher than before.

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## 6. Speaking Task (20 minutes)

**Scenario:** Explain pension risk to a policymaker

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# LESSON PACK D – PORTFOLIO MANAGEMENT & INVESTMENT RISK

## 1. Lesson Objectives

- Explain diversification simply
  - Describe risk-return trade-offs
  - Use cause-and-effect language
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## 2. Warm-Up (5 minutes)

**Questions:** - Is it risky to invest in one asset? - Why do people diversify?

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## 3. Input Material (10 minutes)

### Article (Primary):

- Vanguard – *Why Diversification Matters*

<https://investor.vanguard.com/investor-resources-education/article/why-diversification-matters>

### Alternative Article:

- BlackRock – *Understanding portfolio diversification*

<https://www.blackrock.com/us/individual/education/portfolio-diversification>

### Short Video:

- Khan Academy – *Diversification and risk*

<https://www.khanacademy.org/economics-finance-domain/core-finance/investment-vehicles-tutorial>

**Student Task:** - One risk - One benefit

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**END OF LESSON PACK COLLECTION\*\***