WASTE
MANAGEMENT

Kenneth Lawrence
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Express Publishing

Career Paths

WASTE
MANAGEMENT

Book
1

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Scope and Sequence

Unit	Topic	Reading context	Vocabulary	Function
1	Public Health and Environmental Issues	Chapter introduction	biodiversity, biological waste, contamination, ecosystem, GHG (greenhouse gas) emissions, goods, household waste, hygiene, industrial waste, life cycle, pollution, public health, sanitation, urbanization, waste	Expressing concern
2	Waste Management Basics	Course introduction	aesthetics, circular economy, collection, critical raw materials (CRMs), disposal, environment, generation, minimization, recycling, reuse, transport, treatment, waste management, well-being	Describing necessity
3	Basic Actions	Webpage	conserve, consume, destroy, discard, dispose of, dump, pick up, repair, separate, store, throw away, transport, upcycle	Delivering positive and negative results
4	Properties of Materials	Employee handbook	biodegradable, chemical, electronic waste, FOG, gas, liquid, natural decay, non-biodegradable, organic matter, solid waste, synthetic	Indicating a course of action
5	Common Materials	Webpage	aluminum, brick, cardboard, concrete, copper, glass, metal, paper, plastic, steel, tempered glass, tin, wood	Expressing uncertainty
6	Waste	Cover letter	commercial waste, compost, garbage, public, sewage, trash, wastewater, yard waste	Making a polite request
7	Household Waste	Flyer	appliance, bottle, bulky, can, carton, charger, container, electronics, foil, furniture, jar, lid, pottery, power cord, residue, textile, wrapper	Asking for information
8	Construction and Industrial Waste	Webpage	by-product, construction, debris, demolition, dredging, manufacturing, mining, rubble, tailings	Talking about experience
9	Agricultural Waste	Email	agricultural waste, bacteria, disinfectant, fertilizer, hormone, livestock, manure, nutrient, pesticide, sediment, slurry	Correcting a misconception
10	Biomedical Waste	Memo	biomedical waste, bodily fluid, clinical waste, culture, dressing, laboratory, pharmaceuticals, protective equipment, sharps, sterile, tissue	Delivering bad news
11	Properties of Hazardous Waste	Poster	caustic, corrosive, explosive, flammable, hazardous waste, poisonous, radioactive, reactive, toxic	Attributing information
12	Hazardous Materials	Flyer	ammunition, automotive, battery, fluorescent light bulb, heavy metal, lead, mercury, paint, sludge, solvent	Making an assumption
13	Measurements	Chart	Celsius, degree, Fahrenheit, gallon, kilogram, liter, pound, temperature, ton, tonne, volume, weight	Correcting an error
14	Measuring Waste	Article	diversion, jurisdiction, origin, per capita, reporting, scales, survey, tracking, waste stream	Stressing importance
15	Describing Change	Email	decline, decrease, expand, fluctuate, increase, plummet, rise, shrink, stabilize, steady	Describing consequences

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Unit	Topic	Reading context	Vocabulary	Function
1	Disposal and Storage	Webpage	biodegradation, burn, bury, eliminate, encapsulation, extract, incineration, landfill, resource recovery, WtE	Seeking confirmation
2	Municipal Waste Management	Webpage	bin, collection point, communal, curbside, disposal site, districting, dumpster, garbage truck, MSW, rounds, routing, scheduling, sort, transfer station	Complimenting someone
3	Wastewater Management	Article	black water, black water loop, dry sanitation, feces, fermentation, flush, flush water, gray water, single-pit system, toilet, TPS, urine, urine diversion, vacuum-biogas, vermicomposting, wastewater management, waterless	Giving an example
4	Mine Waste Management	Webpage	coarse, decant shaft, dust pollution, earthquake, failure, fine-grained, hydraulic, overtopping, particle, seepage, slope instability, structural, subsidence	Identifying a problem
5	Industrial Waste Management	Overview	avoidable waste, design waste, exchange, feedstock, industrial ecology, industrial symbiosis, industry, NHIW, raw material, unavoidable waste, value	Expressing confusion
6	Agricultural Waste Management	Report	confinement system, degradation, erosion, fresh water, groundwater, irrigation, pasture renovation, riparian buffer, rotational grazing, runoff, surface water, trap, vegetative cover	Making a suggestion
7	HAZMAT Waste Management 1	Email	accessible, awareness, confusion, consistent, consumer, disclose, educate, HHW, leachate, product replacement, separate, VOC	Making a generalization
8	HAZMAT Waste Management 2	Chapter introduction	decomposition, detoxify, environmental biotechnology, innocuous, microorganism, neutralize, solidification, solubility, source reduction, stabilization, substitute, surface area, synthesis, treat	Describing differences
9	Thermal Treatment	Lecture notes	ash, bed, clog, fluidized bed, heat, liquid injection, multiple hearths, off-gas, oxidize, oxygen, residence time, rotary kiln, sand, thermal unit	Making an indirect question
10	Space Waste Management	Article	anomalous, collision avoidance, design, fragmentation, mission-related, mitigate, operational, orbital debris, satellite, shielding, slag, space, spacecraft	Expressing probability
11	Waste Utilization	Chapter introduction	broke, composition, energy consumption, fiber, post-consumer, pre-consumer, PSW, reclamation, recovered paper, scrap metal, second-hand, uniform, waste utilization	Asking for suggestions
12	Recycling Technology: Glass	Letter to the editor	aggregate, batch melt, closed-loop recycling, color mix, cullet, energy burden, open-loop recycling, product loop, purity, virgin feedstock	Expressing an opinion
13	Recycling Technology: Plastics	Chapter overview	bio-oil, chemical recycling, gasification, heterogeneous, homogeneous, hydrogenation, mechanical recycling, petrochemical, pyrolysis, re-extrusion, semi-clean	Describing features
14	Recycling Technology: Metals	Employee handbook	composite, eddy current separator, grain, handpick, heavy media separator, liberate, magnetic drum separator, overflow, sensor-based sorter, shears, shredder	Showing agreement/ disagreement
15	Recycling Technology: Paper	Webpage	bleach, centrifugal cleaning, cleanliness, dewatering, dispersion, flotation, fractionation, grade, mill, refining, repulping, screening, surfactant, washing	Describing order of events

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Unit	Topic	Reading context	Vocabulary	Function
1	The Effects of Waste	Textbook excerpt	chemical composition, contaminate, disease, economic impact, environmental impact, eutrophication, extinction, food web, habitat, pest, physiological, pollute, practice, respiratory, revenue, standard of living	Describing consequences
2	Environmental Legislation 1	Letter to the editor	benchmarking, compliance, corporate responsibility, enforcement, financial incentive, fine, imprisonment, legislation, obligation, penalty, statutory, sunk costs, unethically, voluntary	Correcting a misconception
3	Environmental Legislation 2	Encyclopedia entry	AECEN, border, directive, environmental law, EPA, EU, European Commission, initiative, international, OECD, policy, regulation, UNEP	Discussing goals
4	Environmental Impact Assessments	Textbook excerpt	audit, decision maker, EIA, EIS, formal, fuzzy logic, justify, LCA, mitigate, predict	Expressing uncertainty
5	Risk Assessment	Course description	acceptable risk, adverse, characterization, exposure, hazard, mixture, probability, risk, risk analysis, risk class, risk management, severity, stepwise	Asking for clarification
6	Pollution Management	Webpage	average, caution, deterrent, emission, emissions inventory, legacy pollution, negligent, ongoing releases, precise, priority pollutant, quantify, standards	Expressing lack of understanding
7	Waste Cleanup	Article	abandoned, bioremediation, cleanup, ex situ, excavate, in situ, isolate, phytoremediation, preliminary assessment, pumping, reimburse, remediate, responsible	Asking for an opinion
8	Incident Response	Memo	biological, certified, chemical spill, contain, drill, emergency, entry, evacuate, incident response, physical, protocol, shut off, suppress	Asking for additional information
9	Natural Resources	Lecture notes	actual resource, allocation, depletion, exhaustible, inexhaustible, localized resource, natural resource, non-renewable, potential resource, renewable, reserve resource, stock resource, ubiquitous resource	Introducing a hypothetical situation
10	Principles of Sustainable Development	Editorial	collapse, DfD, equilibrium, flexible, green, life cycle, long life/loose fit, obsolescence, repurposing, reusable, sustainable, useful life	Describing a benefit
11	Challenges of Sustainable Development	Blog post	accuracy, apathy, complex, comprehensive, efficiency, geopolitical, investment, long-term, misinformation, profit, short-term	Describing results
12	Community Practices 1	Brochure	alternative, disposable, durable, in bulk, lifestyle, pet waste, reconditioning, shopping bag, superfluous, sustainable landscaping, thrift store, water conservation	Giving a reminder
13	Community Practices 2	Email	collaborative, goal, grassroots, local, national, punitive, regional, reward, subsidy, systematic, tax incentive, timeline, zero-waste	Delivering good news
14	Education	Webpage	biology, business administration, certificate, chemistry, civil engineering, degree, economics, environmental management, environmental science, geology, information technology, interdisciplinary, internship, physics	Expressing a preference
15	Careers	Webpage	analyst, dispatcher, driver, environmental health officer, equipment operator, IT consultant, material handler, mechanic, operations manager, public relations officer, route manager, safety manager, sorter	Assigning a task

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industrial waste

biological waste

waste

goods

sanitation

urbanization

A healthy **ecosystem** is in balance. It conserves **biodiversity** and accommodates humans', animals' and plants' needs. However, the ever-growing world population and **urbanization** followed by alarming levels of consumer **waste** and **pollution** disrupt this balance. Certain types of waste in particular, may be hazardous for **public health**; they may cause water and soil **contamination** while waste contributes overall to global **GHG (greenhouse gas) emissions**.

It's highly challenging for governments and municipalities to manage **industrial**, **biological** and **household waste**. Currently, developing countries are looking for ways to provide a basic level of **sanitation** and **hygiene** and reduce the buildup of waste. On the other hand, developed countries are exploring technologies that better understand the **life cycle** of **goods** in order to control the amount of waste that is generated. Improving everyone's quality of life is difficult but of great importance.

Get ready!

1 **Before you read the passage, talk about these questions.**

1 Why and how do waste collection methods vary from country to country?
2 Why is pollution bad for the environment?

Reading

2 **Read the chapter introduction. Then, mark the following sentences as true (T) or false (F).**

1 __ Biodiversity is important for ecosystems.
2 __ Urbanization is the cause of GHG emissions.
3 __ Developing countries are more concerned with basic sanitary issues.

Vocabulary

3 **Match the words or phrases (1-7) with the definitions (A-G).**

1 __ goods
2 __ waste
3 __ household waste
4 __ life cycle
5 __ public health
6 __ hygiene
7 __ GHG (greenhouse gas) emissions

A the stages a product passes from manufacturing to its disposal
B the release of gases that are responsible for causing the greenhouse effect
C products that are meant to be sold
D useless or unwanted materials that remain after a product is used
E the practice and methods of keeping oneself clean
F trash that comes from individual homes
G the standards and practices that are designed to protect the health of a population

4 **Read the sentences and choose the correct words.**

1 To address species conservation, a(n) **biodiversity / ecosystem** action plan must be developed.

2 A common problem in the region is the **sanitation / contamination** of water.

3 Label all containers for sharps as **biological / industrial** waste.

4 In most countries, **waste / pollution** water treatment is regulated by governments.

5 🎧 **Listen to and read the chapter introduction again. What are developed countries currently involved in?**

Listening

6 🎧 **Listen to a conversation between two analysts. Mark the following statements as true (T) or false (F).**

1 __ According to the woman, the problem is that people in the area produce a lot of waste.

2 __ According to the man, people's health is at risk.

3 __ The contamination will likely affect the environment.

7 🎧 **Listen again and complete the conversation.**

Analyst 1: What did **1** _____ _____ reveal for the area?

Analyst 2: Typical practices in developing countries: **2** _____ _____ coverage, old transport services and unsuitable disposal facilities.

Analyst 1: What exactly **3** _____ _____ _____ by unsuitable?

Analyst 2: Waste is burnt in an **4** _____ _____ , which adds to the already serious problem of air pollution.

Analyst 1: I see. If we don't act soon, people will be exposed to **5** _____ _____ .

Analyst 2: And the local ecosystem will be at risk.

Analyst 1: Hopefully, at this afternoon's meeting, we will come up with **6** _____ _____ for the appropriate disposal in landfills.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

What exactly ...?

If we don't act soon, ...

Hopefully, ...

Student A: You are an analyst. Talk to Student B about:
- the results of some research
- disposal practices applied in the given region
- consequences of these practices and possible solutions

Student B: You are an analyst. Talk to Student A about the results of your research.

Writing

9 **Use the conversation from Task 8 to complete the notes of a member of an association for the protection of the environment.**

The research revealed the following issues:
- _____
- _____

Wrong practices of local authorities included:
- _____

Likely consequences:
- _____
- _____

Possible solution:
- _____

Glossary

subsidy [N-COUNT-U13] A **subsidy** is a sum of money that the government pays to a business as a form of aid and in order to lower the cost of a product or service.

sunk costs [N-PLURAL-U2] **Sunk costs** are expenditures that have already occurred and that are permanently lost.

superfluous [ADJ-U12] If something is **superfluous**, it is more than is necessary.

suppress [V-T-U8] To **suppress** something is to stop it from occurring or developing.

sustainable [ADJ-U10] If a business adopts **sustainable** practices to its operations, it aims to prevent or eliminate causes that are harmful to the environment.

sustainable landscaping [N-UNCOUNT-U12] **Sustainable landscaping** is a group of design practices for outdoor spaces that improve or conserve the environment.

systematic [ADJ-U13] If something is **systematic**, it is done in a careful and organized manner.

tax incentive [N-COUNT-U13] A **tax incentive** is a reduction in the amount of tax that a particular group must pay in exchange for adopting a particular practice or taking a particular action.

thrift store [N-COUNT-U12] A **thrift store** is a shop that sells donated goods, often to raise money for a charity.

timeline [N-COUNT-U13] A **timeline** is a plan for when an event will happen or the amount of time it should take.

ubiquitous resource [N-COUNT-U9] A **ubiquitous resource** is a useful material or component that exists nearly everywhere on the planet, such as sunlight, air and water.

UNEP [ABBREV-U3] The **UNEP** (United Nations Environmental Program) is the agency within the UN that is in charge of environmental activities and regulation.
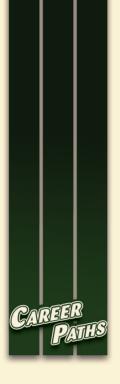
unethically [ADV-U2] If something is **unethically** done, it occurs in a manner that is morally wrong.

useful life [N-UNCOUNT-U10] **Useful life** is the period of time during which a product is expected to be used for its intended purpose.

voluntary [ADJ-U2] If something is **voluntary**, it is optional and someone is not required to do it.

water conservation [N-UNCOUNT-U12] **Water conservation** is the set of policies and strategies related to treating fresh water as a sustainable resource that must be protected in order to meet future demand.

zero-waste [ADJ-U13] If a process or system is **zero-waste**, it uses methods that eliminate waste or pollution and recover all of the resources used.

CAREER PATHS

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Career Paths: Waste Management is a new educational resource for waste management industry professionals who want to improve their English communication in a work environment. Incorporating career-specific vocabulary and contexts, each unit offers step-by-step instruction that immerses students in the four key language components: reading, listening, speaking, and writing. *Career Paths: Waste Management* addresses topics including types of waste, recycling technologies, HAZMAT management, environmental impact assessments, and sustainable development.

The series is organized into three levels of difficulty and offers over 400 vocabulary terms and phrases. Every unit includes a test of reading comprehension, vocabulary, and listening skills, and leads students through written and oral production.

Included Features:

- A variety of realistic reading passages
- Career-specific dialogues
- 45 reading and listening comprehension checks
- Over 400 vocabulary terms and phrases
- Guided speaking and writing exercises
- Complete glossary of terms and phrases

The **Teacher's Guide** contains teacher's notes, a full answer key and audioscripts.

The **audio CDs** (downloadable) contain all recorded material.

Kenneth Lawrence is a supervisor for a municipal waste sorting and transfer facility. He coordinates the separation of household waste and transportation to appropriate storage, recycling, and treatment facilities.

Express DigiBooks

The **Digital** version of the book contains subject specific videos, instant feedback on all tasks and progress monitoring reports.

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