Problem solving and critical thinking
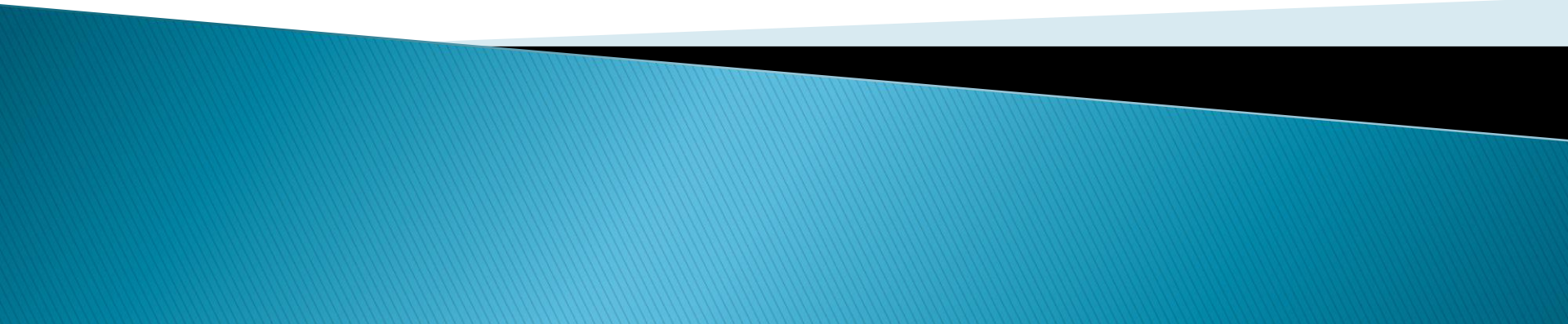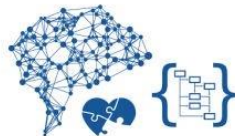
Problem solving: Why should we care?

Top 10 skills

in 2020	in 2015
1. Complex Problem Solving	1. Complex Problem Solving
2. Critical Thinking	2. Coordinating with Others
3. Creativity	3. People Management
4. People Management	4. Critical Thinking
5. Coordinating with Others	5. Negotiation
6. Emotional Intelligence	6. Quality Control
7. Judgment and Decision Making	7. Service Orientation
8. Service Orientation	8. Judgment and Decision Making
9. Negotiation	9. Active Listening
10. Cognitive Flexibility	10. Creativity

Source: Future of Jobs Report, World Economic Forum

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The UPS story

▸ UPS trucks don't turn left

the carrier saves millions of gallons of fuel each year, and avoids emissions equivalent to over 20,000 passenger cars.

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Pair of socks problem

Problem solving: examples

PROBLEM FRAMING

"The elevator is too slow."

SOLUTION FINDING →

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Problem solving: examples

PROBLEM FRAMING

"The elevator is too slow."

↓ **Reframing the problem**

"The wait is annoying." → "Make the wait feel shorter."
- Put up mirrors
- Play music
- Install a hand sanitizer

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Four Aspects of Critical Thinking

- **Abstract Thinking:**
  thinking past what your senses tell you

- **Creative Thinking:**
  thinking "out of the box," innovating

- **Systematic Thinking:**
  organizing your thoughts into logical steps

- **Communicative Thinking:**
  being precise in giving your ideas to others

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Critical Thinkers

- Acknowledge personal limitations
- See problems as exciting challenges
- Have understanding as a goal
- Use evidence to make judgments
- Are interested in others' ideas
- Are skeptical of extreme views
- Think before acting
- Avoid emotionalism
- Keep an open mind

Uncritical Thinkers

o Pretend to know more than they do.

o Get annoyed by problems.

o Are impatient.

o Judge on first impressions and intuition.

o Focus on their own opinions.

o Look only for ideas like their own.

o Are guided by feelings rather than thoughts.

o Claim that thinking gives them a headache.

Don't think about it, just sign it!

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The IDEAL Method

- Identify the problem.
- Define the problem.
- Explore alternative approaches.
- Act on the best strategies.
- Look back to evaluate the effects.

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