📚API & HTTP Request Guide for AI Automations in n8n

This document serves as a clear learning reference for students to understand how APIs work, how to use HTTP Request nodes in n8n, and how to make AI Agents connect with external systems.

💼1. What is an API?

An API (Application Programming Interface) allows two systems to communicate with each other. It enables n8n, chatbots, AI agents, and apps to send or request data.

🧮Real-World Analogy

Example	API Role
You order food	You send a request
Waiter takes your order	API (HTTP Request)
Kitchen prepares food	Server processing
Waiter delivers food	Response (Data back)

You never enter the kitchen — same way, you never directly interact with servers.

🩲2. HTTP Methods (Basic Understanding)

Method	Purpose
GET	Fetch data (read-only)
POST	Send data (create/update/query)

Example: - **GET** weather details - **POST** a question to Perplexity / OpenAI

💼3. Components of an API Call

Every request generally contains:

Component	Description
URL / Endpoint	Address where request is sent
Headers	Authentication / content type
Body	Data or prompt you are sending
Method	GET / POST
Query Params	Filters (optional)

📟4. Using HTTP Request Node in n8n

When to use native node

If n8n already provides a service node (e.g., Google Sheets, Airtable), use that.

When to use HTTP Request node

- No existing native integration
- Need to send dynamic queries via AI agent
- Custom API work

🗜️ 5. cURL Import (Quick Setup Method)

Instead of copying everything manually: 1. Go to API documentation 2. Copy provided `cURL` 3. In n8n →
HTTP Request → Import cURL 4. It auto-fills method, endpoint, headers, and body

This eliminates formatting mistakes.

🔑6. Authentication

Most APIs require a key.

Common header format:

```
Authorization: Bearer YOUR_API_KEY
```

⚠️Note: Always keep keys hidden.

🔗7. Making it Dynamic for AI Agents

Instead of static JSON prompts, convert body into expressions.

Example:

```
{{ $fromAI("search_term", "Topic to search") }}
```

Use this when AI agent must decide the data to fetch.

🛠️8. Troubleshooting Response Codes

Code	Meaning	Reason
200	Success	All good
400	Bad Request	JSON formatting error
401	Unauthorized	Wrong/missing API key
403	Forbidden	Key not allowed / insufficient rights
404	Not Found	Wrong endpoint URL
500	Server Error	Issue on provider side

🕐Summary

- APIs allow communication between systems
- HTTP Request node is gateway when no native integration exists
- Use cURL to simplify setup
- Always handle headers & keys securely
- Use expressions to integrate with AI agents

If students face errors, they should: - Check response codes - Validate JSON formatting - Confirm correct endpoint & headers

This document is intended for technical clarity and ongoing reference while building automation workflows.